Exploring the relationship between Corporate Social Performance (CSP) and institutional shareholding for JSE-listed companies.

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ABSTRACT

Globally institutional investors are taking an increased interest in companies' environmental, social and governance (ESG) disclosure and their corporate social responsibility (CSR) performance. Although the relationship between a company's Corporate Social Performance (CSP) and its institutional shareholding has been studied in a number of developed economies, this study fills a gap in the literature by investigating this link for JSE listed companies. Using Bloomberg's ESG and individual environmental, social, and governance disclosure scores as proxies for CSP, panel data regression methodologies are applied to a sample of 98 companies (254 company years) listed on the Johannesburg Stock Exchange from 2013 to 2016 to investigate the link between the different forms of CSP and institutional shareholding in South Africa. The study fails to establish a relationship between institutional shareholding and environmental and social based CSP, but finds a statistically significant positive relationship for governance based CSP. The results imply that, of the three CSP components, South African institutional shareholders in the studied sample mainly consider the governance component in their investment decisions, possibly because good corporate governance is associated with improved financial performance and the adoption of sustainability policies by the company.

Keywords:

Corporate Social Responsibility, Corporate Social Performance, Environmental, Social and Governance disclosure, institutional investors, South Africa

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CHAPTER 1 INTRODUCTION

1.1 Background

There are increasing expectations for corporations to not only do well in terms of financial returns for their shareholders, but also to be responsible corporate citizens that address the concerns of external stakeholders. The operational decisions of companies are expected to take into account social and environmental issues affecting their employees, customers and the general society (Emami, Nazari & Pour, 2014). There is now an expectation that the business operations must feature measureable Corporate Social Responsibility (CSR) targets in addition to the financial performance targets. In other words, companies must be able to measure their Corporate Social Performance (CSP).

Kok et al. (2001) defines CSR as the 'obligation of the company to use its resources in ways that help society, through committed participation as a member of society, by considering the society at large and improving its welfare independent of any direct financial benefits to the company' (p.87). The term CSR generally refers to actions taken by the company with respect to its employees, communities and the environment that go beyond what is legally required of the company (Barnea & Rubin, 2010).

The current literature on CSR is indicates; that institutional investors are one of the stakeholders who are taking a huge interest in sustainability issues, typically categorised as a company's Environmental, Social and Governance (ESG) activities. For example, according to the sustainable investment report by Siddy (2009), in Europe many asset owners like pension funds are now requesting that their fund managers integrate ESG criteria into their investment analysis. The same report quotes the US Social Investment Forum (US SIF)[1] that socially responsible investment (SRI) funds now account close to 11 percent of all assets under professional management. Furthermore, although SRI funds still account for a small portion of the US asset management industry, they are rising fast in Europe and Australia (Brammer et al., 2009). A report by Eurosif, a leading European association

[1] The Forum for Sustainable and Responsible Investment (US SIF) is a U S based membership association that promotes sustainable, responsible and impact investing across all asset classes (US SIF, 2017).

for the promotion and advancement of social responsible investments, estimates that SRI funds now represent over 17 per cent of the assets under professional management in Europe (Siddy, 2009). Legislation is similarly increasingly supporting responsible investing – for example, the UK Government has enacted laws that compel public pension funds to take ESG issues into consideration in their investment decisions (Cox et al., 2004).

The interest in ESG issues by institutional investors is not only being observed in the developed economies. In South Africa, CSR has been encouraged by a number of independent institutions who are concerned about responsible investments and want to show good corporate citizenship. Unlike the UK, South Africa, like the rest of the developing world, doesn't have laws which require big institutional investors like pension funds to consider ESG factors in their investment decisions. Therefore, most local investment actions encompassing ESG principles have been voluntary. A good example of these voluntary initiatives is the stance taken by the Government Employees Pension Fund (GEPF), which controls and manages the pension fund assets of all state employees in the country, and has stated an intention use its large investment positions to push for greater governance, social responsibility and environmental protection (Viviers et al., 2009).

In addition, the Johannesburg Stock Exchange (JSE), Africa's largest stock exchange, in 2004 created the JSE Social Responsible Investments Index where listed companies in the FTSE/JSE All Share Index are reviewed annually against a holistic set of ESG issues. Specifically, the index was designed to reflect the complex nature of sustainability and social responsibility issues in South Africa.

Apart from the initiatives of the JSE, South Africa also has the Southern African Impact Investing Network (SAIIN), which was started in 2009 by GreaterImpact[2] and sponsored by Cadiz Asset Management, to promote impact investing in South Africa (SAIIN, 2015). The first SAIIN conference in 2010 attracted more than 100 participants across multiple disciplines, ranging from large financial institutions to

[2] GreaterImpact is a South African advisory firm specialising in Impact investments

banks, asset management companies to developmental financial institutions, showing that there is general support for such CSR initiatives in the country.

Another report on the state of responsible investment in South Africa commissioned by the United Nations Environment Programme Finance Initiative (UNEPFI) in collaboration with the University of South Africa (UNISA), estimated that at most 15% of the pension fund assets in the country were managed under responsibility investment strategies, while the figure for asset management companies was 11% (De Jongh et al., 2007).

Identifying the importance of sustainability issues into the investment decisions, the Institute of Directors South Africa (IoDSA) established the Committee on Responsible Investing by Institutional Investors in South Africa. The committee went on to launch the Code for Responsible Investing in South Africa (CRISA) in 2011, with the codes being effective from 2012 (Institute of Directors South Africa , 2011). The code gives formal guidance to institutional investors such pension funds, insurance companies, and asset and mutual funds managers, on how they should incorporate ESG factors in their investment decisions. The code is not only endorsed by the Association for Savings and Investment South Africa (ASISA) and the Principal Officers Association (POA), but has also received support from other important organisations in the South African financial market, such as the Financial Services Board (FSB) and the JSE. According to Institute of Directors South Africa (2011) the creation of CRISA made South Africa the only country after the UK to formally encourage institutional investors to include ESG factors in their investment decisions

The huge interest by institutional investors in companies' CSR activities can be explained by the fact that companies with good CSP have been linked to lower investment risk. Spicer (1978) reported that companies which have good environmental management systems are associated with good financial performance and present low investment risks, as they are less likely to incur huge environmental penalties and fines from the authorities. Therefore good CSP is associated with reduced regulatory risks. Neubaum and Zahra (2006) observes that creating an organisational culture that puts a greater focus on maintaining good relations with all

the critical stakeholders of the company and caring about the environment, require long-term investments of resources over a great period of time. These relationships built on mutual respect with the stakeholders, represents valuable intangible assets to the company, and the actions cannot be easily copied by rival companies, giving the company a significant advantage over its competitors.

Based on the observation that institutional investors often have a big share portfolio which includes a variety of shares in different companies in different industries, Bushee et al. (2013) suggests that due to the high investment monitoring costs of institutional investors they are likely to prefer companies with strong internal monitoring mechanisms in the form of good corporate governance, which can act as a substitute for the institutional investors' own costly monitoring activities.

Furthermore, due to the large shareholding they often own in the companies compared to other investors, institutional investors have become involuntary long-term investors (Greening & Johnson, 1999). For example, Michaely and Vincent (2012) point out that institutional investors owned more than 78 percent of outstanding shares in US companies by the end of 2009. To highlight the significance of institutional investors as an investment group in the South African economy, the Organisation for Economic Co-operation and Development (OECD)[3] (2013) report, which was presented at the meeting of the G20 Finance Ministers and Central Banks Governors in 2013 in Russia, showed that South Africa has one the largest pension fund industries both in absolute terms and in relation to its economy, at over 60% of GDP, putting the country at the same level as developed countries such as the UK, US and Canada. The large investment holdings have made it hard for institutional investors to exit those investments without affecting the share price of the company (Greening & Johnson, 1999).

The benefits of CSR investments accrue over the long-term, and for the majority of the institutional investors this has meant that they become supporters of good corporate governance, and through shareholders activism have tried to influence the executive management of the many companies to consider ESG factors when

[3] OECD an international organisation of 34 free economy countries. Its stated goal is the 'promotion of policies that aim to improve the economic and social well-being of people around all over the world ' (OECD, 2017)

making business decisions (Ryan & Schneider, 2002; Neubaum & Zahra, 2006). The institutional shareholders use their large investment holdings to influence management to consider CSR issues in companies' operational plans, as means of ensuring the long-term sustainability of their investments and ensuring their invested companies gain a competitive advantage over their competitors (Neubaum & Zahra, 2006; Greening & Johnson, 1999). For the management of the different companies this means that if they want their company's shares to be attractive to one of the largest investment group in the financial markets, they need ensure that they are addressing the ESG concerns of institutional investors (Graves & Waddock, 1994).

The motivation of why management would want their company to be attractive to institutional investors, is the fact that their financial rewards are often linked to performance of the company's share price, a practice that is fairly prevalent in the South African financial market (Crotty & Bonorchis, 2006). It is crucial for management to attract institutional investors because investments by institutional investors have been found to have a positive effect on the company's share price. This is because investments by institutional investors often result in reduction in information asymmetry between the company and its other investors (Kim & Cheong, 2015; Huyghebaert & Van Hulle 2004). Institutional shareholding also contributes to the liquidity of a company's shares and has been found to improve share price discovery (Aguilar, 2013; Huyghebaert & Van Hulle 2004)

One of the useful tools that companies use to inform both the general public and their investors on their CSR activities, is through their published annual financial statements, press releases, and standalone CSR disclosure reports. This is defined as CSR disclosure from the perspective of the company, and from the perspective of investors this is defined as ESG disclosure. Bushee and Noe (2000) says that corporate disclosure practices of companies could be very important to institutional investors who depend on public disclosures for information of the corporate governance activities of companies. The CSR literature includes a significant number of research studies that have used ESG disclosure as proxy to measure a company's CSP (see, for example, Healy et al., 1999; Bushee & Noe, 2000; Hoq et al., 2010; Khumalo & Pitt, 2015; Clarkson et al., 2008) and the current study continues with this trend.

1.2 Problem Statement

A majority of the prominent studies on the relationship between CSP and institutional shareholding have found evidence that supports the assertion that increased CSP often attracts greater institutional investors (see, for example, Hansen & Hill, 1991; Graves & Waddock, 1994; Cox et al., 2004; Mahoney & Roberts, 2007; Saleh et al., 2010). The assumed reason behind this positive relationship is that from a portfolio management point of view, the majority of institutional investors view CSR activities as a mitigant to a great number of operational risks faced by the company and therefore companies with good CSP are associated with lower investment risk as explained above. This means given the opportunity to choose between two similar companies one with bad CSP and the other with a good CSP, institutional investors are more likely to invest in the company with better CSP as they are able to achieve the same return with a lower investment risk (Graves & Waddock, 1994).

Within a Stakeholder and Legitimacy Theory framework (see Section 2.1.1 and 2.1.2), the problem that this study attempts to address is therefore whether South African companies who have shown greater commitment to CSR issues and/or disclosure attract an increased number of institutional investors as shareholders.

Secondly, within a Portfolio Theory context (see Section 2.1.3), this study indirectly attempts to establish whether institutional shareholders in South Africa take into account ESG factors in additional to financial performance when making investment decisions.

1.3 Purpose of Research

The purpose of this study is to investigate a potential relationship between CSP and institutional shareholding for a large sample of publicly held South African companies. The aim is to find out whether the CSP (and CSR disclosure) of a company influences the number of institutional investors holding the shares in the company, by using Bloomberg's ESG disclosure scores, a multi-attribute rating system widely recognized as one of the proxies of CSP (Han et al., 2016). This allows the research study to test for the above relationship using both a composite measure of CSP represented by the overall Bloomberg ESG disclosure score, as well as the different forms of CSP represented by the Bloomberg Environmental, Social, and Governance individual disclosure scores.

1.4 Benefits of the study

The study provides fresh evidence in the South African context concerning the relationship between CSP and institutional shareholding. The investigation is from an emerging market perspective, which is important as the majority of the current literature on the topic has been from developed nations (for examples see Hansen & Hill, 1991; Graves & Waddock, 1994; Greening & Johnson, 1999; Cox et al., 2004).

Additionally the majority of the South African research on CSR has mainly focused on the sustainability reporting trends by South African companies (see Visser, 2004; Heese, 2005; Van Zyl, 2013; Vos & Reddy, 2014). This is to the author's knowledge the first study to investigate how CSR disclosure by these companies affects their institutional shareholding.

This study therefore addresses a research gap that exists in the understanding of the relationship between institutional shareholding and CSP and CSR, within emerging markets in general, and South Africa in particular.

1.5 Chapter Outline

The remainder of this document is organised as follows. Chapter 2 begins with a discussion on theoretical predictions of the relationship between CSP and institutional shareholding, and provides empirical findings of previous studies on the link between institutional shareholding and CSP. Chapter 3 explains the data and methodology used in this study. Chapter 4 consists of a comparative discussion of the findings of this research study in relation to previous studies done on the subject being investigated. Finally, Chapter 5 concludes and puts forward suggestions for further research.

CHAPTER 2 LITERATURE REVIEW

The following section highlights the theoretical predictions of the relationship between institutional shareholding and CSP. The empirical findings on the relationship from both developed economies and the emerging markets are discussed next, leading to the research hypothesis.

2.1 Theoretical predictions for the relationship between CSP and Institutional shareholding

The relationship between environmental disclosure and a company's institutional shareholding can be explained in terms of three theories, namely the Legitimacy Theory, the Stakeholder Theory, and the Portfolio Theory. The Stakeholder and Legitimacy Theories explain why companies engage in CSR disclosure, and the Portfolio Theory explains why institutional investors are likely to invest in companies will better CSP.

2.1.1 Stakeholder Theory

The Stakeholder Theory says that companies need to ensure their survival and continued success by making sure that they satisfy the majority of their stakeholders' demands, failing which they will be faced with unpleasant confrontations from their stakeholders (Roberts, 1992; Huang et al., 2010).

This means that the different stakeholders need to be managed to ensure their continued support, and ultimately ensure that the company achieves its corporate objectives (Mahadeo et al., 2011). It is in this context that CSR reporting by companies is seen as part of a mechanism whose role is to mitigate any action that may be detrimental to the company meeting its corporate objectives (Mahadeo et al., 2011). This suggests that companies have gone through an exercise of identifying who their target audience is, and will provide information that will influence that specific group - this is regarded as stakeholder dialogue. An open dialogue and interaction between the company and its stakeholders creates what Habisch and Moon (2006) define as social capital, which in an important asset to the company and has the benefit of ensuring that the company continues to operate successfully.

Mahadeo et al (2011) talks about the managerial (instrumental) branch of stakeholder theory, which specifically focuses on the need to control stakeholders who are perceived to have a more direct and critical impact on the company, as these stakeholders can withdraw or redirect resources meant for the company, thereby endangering its existence. Davenport (2000) classifies stakeholders into five categories namely: customers, suppliers, employees, shareholders, and communities. Institutional investors fall under shareholders and due to the size of funds they manage on behalf of their clients (and in the South African context have invested in the JSE), it is reasonable to assume that they fall into this critical category of stakeholders.

2.1.2 Legitimacy Theory

Legitimacy Theory is based on the idea that in order for a business to access the necessary resources in needs to operate successfully now and in the future, the company should all the time act within the limits of what society identifies as socially acceptable behaviour (Deegan, 2002). Legitimacy theory proposes that a company, unlike a natural person, has no inherent right to exist, but rather is granted a social license to operate by society (Hahn & Kühnen, 2013). This means that such legitimacy afforded to the company can be immediately threatened if the society views the company as operating outside the prevailing acceptable societal norms.

Companies who view themselves as good corporate citizens and are compliant with the prevailing societal laws will attempt to differentiate themselves from those that are not, by making sure that they report on their good CSP as a way of legitimising their existence. This means the voluntary CSR disclosure by companies, where they highlight their CSP and accomplishments, form part of their legitimisation strategies, as this is one way in which companies can show that they are good corporate citizens and are contributing to the betterment of the society. It can be concluded then that one way in which companies can effectively be held accountable for their operations is for them to engage in comprehensive voluntary CSR disclosure.

2.1.3 Portfolio Theory

Portfolio theory explains why institutional shareholders are more likely to invest in companies with better CSP than those without. The theory also contributes to the understanding of the relationship between institutional shareholding and a company's CSP.

Modern portfolio theory defines investment return as a function of risk, and suggests that investment decisions by investors should always take into account both the rate of returns and the level of risk (Cox et al., 2004). In addition to financial risks, there are other operational risks that the company is exposed to. It has been suggested that CSP reduces legal risks as well as regulatory risks (Spicer, 1978). This means that companies who regularly engage in CSR activities should represent a lower investment risk. There is enough empirical evidence showing that institutional investors are risk averse, and it can therefore be expected that institutional investors will find CSR useful only if it reduces the risk of their investment (Chaganti & Damanpour, 1991). As a result it is expected that institutional investors will prefer investing in companies with high levels of CSP, due to the same return being possible with less risk (Graves & Waddock, 1994). In other words, one expects companies with good CSP to be able attract a greater amount of institutional investments that those who have poor CSP.

2.2 The diverse preferences for CSP by institutional investors

Even though the majority of the studies into the relationship between CSP and institutional shareholding have found a positive relationship between the two (examples include Hansen & Hill, 1991; Graves & Waddock, 1994; Greening & Johnson, 1999; Cox et al., 2004), Neubaum and Zahra (2006) points out that one should not expect that all institutional shareholders will hold the same view when it comes to the company's CSR investments, as their incentives are not always the same.

Therefore, institutional investors have to be classified into different categories, namely short-term and long-term investors, since it has been shown that not only do they hold different motivations for their investment decisions, but they also have different time horizons for their investments (Bushee & Noe, 2000; Greening &

Johnson, 1999; Cox et al., 2004; Neubaum & Zahra, 2006). Due to these differences, it has been argued that the different institutional investors will have their own unique as well as potentially conflicting preferences, for companies' CSR activities (Greening & Johnson, 1999; Cox et al., 2004; Neubaum & Zahra, 2006).

An example of short-term institutional shareholders are mutual funds, unit trusts, investment trusts, and investment banks (Cox et al., 2004; Johnson & Greening, 1999). The investment behaviour of short-term institutional investors is based on Myopic Institutions Theory developed by Hansen and Hill (1991). According to Myopic Institutions Theory, the investment decision taken by institutional shareholders tend to be more short-sighted than those of individual investors (Hansen & Hill, 1991; Graves & Waddock, 1994). It is hypothesized that short-sightedness happens because the people who are employed and are working for these institutions compete for client accounts, and thus their performance and financial rewards are reviewed and rewarded on the basis of their annual or quarterly performance. This means this particular group of institutional investors only consider short-term financial rewards when making investment decisions.

There is also general consensus in the literature that the investment costs of CSR are incurred in the short-term while the returns are only realised in the long-term (Neubaum & Zahra, 2006). Short-term investors tend to avoid CSR investments as they present long-term investment commitments with uncertain outcomes, and rather focus on maximizing financial returns in the short term (Cox & Wicks, 2011).

On the other hand, pension funds and life insurance are classified as long-term institutional investors, due to them being known for investing for longer periods of time and having predictable cash outflows (Ryan and Schneider, 2002). In addition, these institutions often hold large investments in their investment portfolios (Fauzi et al., 2007; Johnson & Greening, 1999). These large investments usually restrict them from making quick changes to their investments (Greening & Johnson, 1999). Compelled to stay invested for longer periods of time, they can be expected to support CSR initiatives in the companies they are invested in, as CSR initiatives are seen as mitigating possible future risks to their investments (Cox & Wicks, 2011; Kruse & Lundbergh, 2010).

In order to investigate the relationship between CSP and institutional shareholding, some studies have taken the approach of separating the different institutional shareholders while others did not. The literature is filled with a variety of institutional investors, but for the studies that decided to split the institutional shareholders into different categories, the common approach has been to split institutional shareholders into short-term and long-term institutional shareholders.

The next section discusses research studies on the relationship between CSP and institutional shareholding that focus on developed economies. The research literature on the link between CSP and institutional shareholding is very sparse, with less than twenty studies that that were found by the author. In contrast, studies on the impact of institutional shareholders on CSP are far more plentiful[4], but are not relevant to the focus of the present research study

2.3 Empirical findings on the relationship between CSP and institutional shareholding from developed economies.

The first study to investigate the relationship the between CSP and institutional shareholding was done by Coffey & Fryxell (1991). The purpose of this study was to provide new research findings about the relationship between institutional shareholding and different dimensions of CSP. The rationale behind using CSP comprising several dimension is that CSP is a multi-dimensional construct (Carroll, 1979), and it is likely that the relationship with institutional shareholding may differ across these dimensions of CSP. Using a sample of 110 USA Fortune 500 companies in 1984, Coffey and Fryxell (1991) study categorised CSP into the dimensions of corporate social responsiveness, charitable donations, and social issues management. Charitable donations was defined as the proportion of pre-tax earnings donated to charities, whilst corporate social responsiveness was measured as the number of women representatives sitting on the board of directors of the companies featured in the research. Social issues management was measured by

[4] See, for example, Roberts (1992); Delgado-Garcia et al. (2010); Arora and Dharwadkar (2011); Oh et al., (2011); Harjoto and Jo (2011); Rees and Rodionova (2012); Calza et al. (2013); and Dam and Scholtens (2013).

the company's compliance with the Sullivan principles[5], which related to policies by a company regarding its presence in Apartheid South Africa, a highly controversial issue in the time the study was done. The study established a positive relationship between the institutional shareholding as a percentage of shares held by institutional shareholders, and the number of women representatives on the board of directors. However, no statistically significant relationship as found between institutional shareholding and charitable donations. Social issues management, on the other hand, showed a surprising negative relationship with institutional shareholding.

The researchers noted that due to the use of cross-sectional data they were uncertain with regards to the direction of the relationship between institutional shareholding and the number of women represented on the sample companies' boards. The study could not determine with precision whether institutional investors were attracted to companies that have women on their boards or if the institutional investors were the ones influencing the hiring of women on company's board of directors.

According to the study the latter could happen somewhat unintentionally if there are more women already sitting in top management in the investor company or if board size were to increase with the introduction of institutional investment. There is a suggestion that there is a possibility that institutional investors actually promote and advocate that the board must be diverse, based on the belief that a diverse board with more woman will improve the company's performance. The conclusion was that it was likely that each of these possibilities working together could explain the positive relationship between the two variables.

Coffey and Fryxell (1991) and Graves and Waddock (1994) conducted further studies on the relationship between institutional shareholding and CSP, based on two theoretical predictions - Myopic Institutions Theory, and the theoretical prediction of the relationship between CSP and investment risk (*i.e.* Portfolio Theory). The latter predicts that institutional investors are expected invest more heavily in companies with strong corporate social performance, and is based on the earlier study done by Spicer (1978), which showed that institutional investors consider companies with

[5] These are the names of two corporate codes of conduct, developed by a US preacher Rev. Leon Sullivan to promote CSR (Lashgari & Gant, 1989).

lower CSP to be riskier investments. The research study by Spicer (1978) of 18 US pulp and paper companies listed on the New York Stock Exchange between 1970 and 1972, showed that there is moderate to strong correlation between the observed investment risk of a company and how it handles and responds to CSR issues. The study showed that the investment risk increases due to costly sanctions against the company as a result of adverse regulatory and judicial findings against the company. The possibility of such actions against the company leads institutional investors to revise their perceptions of the future financial success of the company. Thus in terms of efficient market theory, an investment in a company that is considered irresponsible could be considered inefficient (Spicer, 1978), as given the choice of investing between two similar company where one is socially responsible and the other one not, with the former the investor has the ability of achieving the same return with less risk (Graves & Waddock, 1994).

To measure CSP, the Graves and Waddock (1994) study generated an index from The Kinder Lydenberg Domini & Co. (KLD)[6] database, which gave them a single numeral value for CSP for each of the companies in the study. The advantage of using KLD to measure CSP is that the companies are rated on multiple features which are considered important to CSP. The CSP measure used was an aggregate of eight different attributes of CSP, which included community relations, product safety, the treatment of women and minority groups, environmental issues management and others.

Using a sample of 430 USA companies from the Standard & Poor's 500 in 1991 and treating institutional shareholders as a single group, the study found a significant positive relationship between CSP and the number of institutions investors holding the shares of the companies, and a positive but insignificant relationship between CSP and the percentage of shares held by institutional investors.

The results of the study could not find support for the theoretical predictions of the myopic institutions theory, and showed that there were no penalties for improved corporate social performance in terms of institutional shareholding as predicted by this theory. Another interesting aspect of their findings was that there was a low correlation between the two measures of institutional ownership, namely the number

[6] KLD Research & Analytics, Inc. is an US company specialising in CSR ratings.

of institutional investors holding shares in a company, and the percentage of a company's shares held by institutions. This indicated that an increase in the number of institutional investors holding a company's shares did not necessarily lead to an increase in the number of shares held by institutional investors (Graves & Waddock, 1994).

Mahoney and Roberts' (2007) study investigated the relationship between CSP and institutional shareholding (again represented as a single group) plus the relationship between CSP and company's financial performance, on a sample of publicly held Canadian companies. The study makes two important contributions to the research of the relationship between CSP and institutional shareholding. Not only was the research done in a different country to the US, but it also examined the relationship between the two variables over a longer period of time, in contrast to the studies of Coffey and Fryxell (1991) and Graves and Waddock (1994), which were both based on single year observations. With the use of four years of data this meant the results of the study could be regarded as being more reliable.

Similar to the studies done by Coffey and Fryxell (1991) and Graves and Waddock (1994), the CSP rating used in the Mahoney and Roberts (2007) study used both a composite measure of CSP and unique individual components of the overall CSP rating. This allowed the researchers to only test for the relationship between institutional shareholding against the composite measures of CSP, but also against individual CSP components, namely environmental issues, community relations, employee relations, product safety, business practices.

Using a sample of 300 companies from then Toronto Stock Exchange (TSE) 300 Index for the period of 1996 to 1999, the study found a statistically significant relationship between a company's composite measure of CSP and the number of institutional investors holding the company's shares, supporting the previous studies by Coffey and Fryxell (1991) and Graves and Waddock (1994). Similar to the result of the Graves and Waddock (1994), the study found an insignificant relationship between social performance and the percentage of shares held by institutional investors. On the individual components of CSP the study found a significant positive relationship between company's CSP ratings regarding community relations and product safety and the number of institutional investors holding the company's

shares, but no statistically significant relationships for the others, except for environmental issues. The study found a negative relationship between the number of institutional investors holding the company's shares, and environmental based CSP. However, this relationship was not strong.

According to Faller et al. (2016), the majority of the studies with positive results on the relationship between CSP and institutional shareholding applied similar variables to define and measure CSP, and most importantly a number of them made no distinction between long-term and short-term institutional shareholders. In contrast, the various studies which reached inconclusive results compared two different types of institutional investors. It is argued that it is important to make the distinction between the two types of institutional shareholders, as the investors often display different investment behaviours and strategies and apply different pressures on the companies they are invested in (Faller et al., 2016). This argument is based on the assumption that long-term institutional shareholders are more likely to support CSR investments compared to short-term institutional shareholders.

Cox et al's.(2004) research study, based on portfolio theory and using 541 UK companies on the FTSE All Share index between the years 2001 and 2002 as sample, offered new insights onto the relationship between CSP and institutional shareholding. With the availability of detailed institutional shareholding data, the study was able to classify pension funds, charity organisations and life insurance funds as long-term institutional investors, and investment trusts (known as exchange traded funds or EFTs in South Africa), and unit trusts as short-term institutional investors. The theoretical argument put forward by these researchers was that the importance of CSP in the investment decisions of the different institutional investors were likely to be dictated by a scope of factors, such as the financial benefits associated with CSP, the risk attached to CSP, and lastly the expected period over which the financial returns are likely to accrue. As discussed in the beginning of this chapter, short-term institutional shareholders in their investment decision are expected to respond negatively to CSP, as the pay-off from CSP is long-term, whilst these investors are looking for short-term financial returns (Johnson & Greening, 1999). Long-term institutional shareholders, on the other hand, are expected to respond positively to good CSP, and hence a positive relationship between long-term institutional shareholders and CSP was expected.

To measure the company's CSP the study used data provided by Ethical Investment Research Service (EIRIS), one of the U.K.'s long standing independent CSP research companies. The data consisted of a composite measure of CSP and three components of CSP (environmental, employment relations and community involvement issues). Institutional shareholding was represented by the percentage of outstanding shares held by institutional investors. To measure the relationship between company's composite CSP and institutional shareholding, institutional investors were divided into institutional investors identified as long-term investors, and shorter-term institutional investors. Additionally, five subsamples, each consisting of one of the five identified institutional shareholders were separately assessed in this study. The use of data from a credible CSP rating agency such as EIRIS and the availability of detailed institutional shareholding data meant that this study could produce more reliable results compared to Coffey and Fryxell (1991) and Graves and Waddock (1994) studies. The additional detailed data on institutional shareholding also introduced new insights into the relationship between institutional shareholding and CSP.

The study found a positive significant relationship between the composite measure of CSP and the long-term institutional shareholders, again confirming earlier findings by Graves and Waddock (1994). The positive relationship was also established for two of the three identified long-term institutional investors, namely pension and life insurance funds. The study could not establish a relationship between short-term institutional investors as a group, but did establish a negative relationship between CSP and exchange traded funds. When it came to the components of CSP, the relationship between the components of CSP and long-term institutional shareholding was also found to be positive, supporting earlier research findings by Coffey and Fryxell (1991). No relationship could be established for short-term institutional investors.

Having separated the institutional investors into two distinct groups, the positive relationship found between long-term institutional shareholders and CSP and the negative relationship established for some of the identified short-term institutional investors provides additional evidence to support the research findings by Johnson and Greening (1999), which looked at shareholder activism by institutional investors in 252 companies in the US in 1993. The latter study found that long-term pension

funds had developed into one of most active shareholders trying to force management to align the company's financial interests and the interests of all stakeholders. Additionally, pension funds (unlike mutual funds) seemed to be concerned not only about the financial performance of a company, but about the environmental and social issues affecting the company.
The next section will consider the empirical findings on the relationship between CSP and institutional shareholding from the emerging markets.

2.4 Emerging market research studies on the potential relationship between CSP and institutional shareholding

Baskin and Gordon (2005) research paper on corporate responsibility practices of Emerging Market companies compared 127 publicly listed companies from 21 emerging markets against 1 740 listed companies from OECD countries. The countries covered included Brazil, South Africa, Egypt, Indonesia, Malaysia and others, and in totality the featured companies accounted for 22 percent of the emerging market companies listed on FTSE's All-World index. The research study showed that over two-thirds of the featured companies from emerging market companies either produced a standalone sustainability report, or that their website or their annual report had a specific section which covered corporate responsibility. The study also showed that over 50% of the featured emerging market companies had disclosure of their environmental policies and management systems.

Additionally Siddy (2009) points out there is measurable growth being observed in the sustainable investment financial sector driven by institutional investors, with over 170 pension funds with a total combined value of funds under management at around US$18 trillion having now signed on as signatories to the United Nations Principles of Responsible Investment (UN PRI)[7]. The pace of change and innovation is particularly noticeable in emerging markets such as South Africa, Brazil, and India (Siddy, 2009).

[7] The UN PRI is an international organization whose role is to help signatories put into practice the six voluntary Principles of Responsible Investment.

With the current research on sustainability reporting by emerging market companies showing a positive upward trend, plus the growing interest into sustainability issues by institutional investors from emerging economies, this section discusses research studies from the emerging markets which have investigated the relationship between CSP and institutional shareholding. The majority of the research studies discussed below have shown a positive relationship between institutional shareholding and CSP, and hence the research outcomes from these studies are very similar to the research findings from developed nations, and follow similar research methods. All the research studies treated the institutional investors as a single group and no difference was made between short-term and long-term institutional shareholders, mostly due to a lack of detailed institutional shareholding data.

The first research study to be discussed looked at the relationship between CSP and Institutional shareholding for 324 Indonesian companies listed on the Jakarta Stock Exchange (JSX) in 2005 (Fauzi et al., 2007). When the research study was conducted, the country had just passed a new law referred to in the paper as Indonesian Law No.40. The law compelled all the companies in the country to consider CSR issues in their operational decision, but the majority of the Indonesian companies denounced the new law, claiming that it would lead to a decrease in their profits, and therefore were reluctant to implement it (Fauzi et al., 2007).

The study used the number of institutional investors owning shares in a company to measure institutional shareholding, and applied content analysis of CSR issues disclosed in the annual financial reports to measure the company's CSP. However, the study could not find a significant relationship between CSP and institutional shareholding for Indonesian companies. The reason for the lack of relationship, according to the researchers, was because of the attitude Indonesian firms had towards CSR, which they viewed only as charitable activities. CSR issues such as ensuring that the company maintains good corporate governance and has good relations with suppliers and employers were not associated with CSP by a majority of Indonesian companies. The shortcoming of this study was the fact that only one year of data was used, similar to the Coffey and Fryxell (1991) and Graves and Waddock (1994) studies. The other shortcoming of the study was that due to a lack of CSP data the researchers used self-administered content analysis to measure CSP,

instead of using independently compiled data from a reputable CSP ratings institution.

Using self-administered content analysis CSP ratings referred to as Corporate Social Responsibility Disclosure (CSRD) ratings, where the level of CSR disclosure in the company's annual financial reports is used as proxy to measure the company's CSP, Saleh et al. (2010) investigated the relationship between institutional shareholding and CSP in Malaysian context, using 200 Malaysian publically listed companies between 2000 and 2005 as sample. The study used both the percentage shareholding by institutional investors and the number of institutional shareholders holding shares of the company to measure the level of institutional ownerships, and a composite measure of CSP and four components that make up the overall CSP as dependant variables. Just like the study by Mahoney et al. (2007), the components included the community activities based CSP, product safety CSP, environmental based CSP, and employee relations CSP.

The study found a positive relationship between the composite measure of CSP and institutional shareholding, supporting the results of Mahoney et al. (2007) and Cox et al. (2004), and the hypothesis that institutional investors in Malaysia do have a preference for companies that have good CSP. The results for the components of CSP revealed that there is positive relationship between institutional shareholding and product safety CSP and employee relations CSP, in accordance with the findings of Cox et al. (2004). However, the remaining two components (community activities based CSP and environmental issues CSP), showed a negative relationship with institutional shareholding, the latter being in line with the findings of Mahoney et al. (2007). An observation from the research study which could explain the results is that the researchers had acknowledged that most disclosed CSR issues in the annual reports assessed related to employee relations, and that environmental issues were the least disclosed.

The other reason proposed by the researchers for the negative relationship is that there are usually large sums of money required for both community activities and for environmental issues, which could affect short-term profits. The study theorised that some of the institutional shareholders (particularly short-term investors like mutual funds) may view these activities in a negative light, considering that these

institutional investors are mainly concerned with maximising returns in the short-term. The shortcomings of the study were similar to the ones from the Fauzi et al. (2007) research study, as both studies used content analysis (a method subject to human error) to measure CSP. The other issue with the study is the fact that it only focused on annual financial reports, and none of the other forms of sustainability reporting like company websites and standalone sustainability reports were considered.

Further Malaysian research studies to look into the CSP-institutional shareholder relationship were conducted by Hoq et al. (2010) and Muniandy and Barnes (2010). Hoq et al. (2010) applied exactly the same method as Saleh et al. (2010) to measure both CSP and institutional shareholding, except that the period covered by study was one year longer. Not surprisingly, therefore, the positive relationship between institutional shareholding and the composite measure of CSP was similar to the findings by Saleh et al. (2010).

Similarly, Muniandy and Barnes (2010) also used content analysis of CSP disclosures to measure a company's CSP. Unlike Hoq et al. (2010) and Saleh et al. (2010) the researchers also considered standalone CSR disclosure reports in the measurement of CSP, but only covered the top 100 listed Malaysian companies by market capitalisation. Looking at the annual reports of companies in the year 2004, the study found no relationship between CSP and institutional shareholding. The main shortcoming of this study is that only a single year of data was considered. Admittedly CSP data is scarce in emerging markets, but it is unlikely that one year worth of observations and a reduced number of companies, could reliably capture the relationship between institutional shareholding and CSP.

Lastly on the discussion of the research studies from the emerging markets, the empirical findings from the research study conducted by Wahba (2008) into the relationship between environmental based CSP and institutional shareholding for Egyptian companies is discussed next.

On the realisation that Egyptian companies were not advanced when it comes to disclosure regarding environmental issues, this researcher was compelled to look for innovative proxies to measure companies' environmental based CSP. The study made use of a company's adoption of an international environmental standard to

measure its environmental responsibility. For 156 public listed companies covering 19 industrial sectors in 2006, the study made use of ISO 14001[8] certification to measure a company's environmental responsibility. Data was retrieved from the Egyptian Environmental Affairs Agency and companies that were certified were deemed environmentally responsible, and those that were not were regarded as not being responsible. The ISO 14001 standard was chosen because, regardless of the company's size or industry type, the method to identify whether a company was compliant or not is the same.

The value add of the study on CSR research was that Wahba (2008) hypothesised that the relationship between CSP and institutional shareholding is not static, but is actually affected by financial performance. The study predicted that the relationship between CSP and institutional shareholding is moderated and varies with the degree of financial performance, as institutional investors still regard the financial performance of the company as the main priority when making investment decisions. The premise is based on the empirical findings by a majority of the studies on the chosen topic, that have shown that when used as a control variable an improvement in financial performance is associated with an increase in institutional shareholding[9].

Institutional shareholding was measured using the percentage shareholding by institutional shareholders and financial performance was represented by return on assets (ROA). The study was able to confirm that there is significant positive relationship between Environmental based CSP and Institutional shareholding.

In order to test for the main hypothesis, the study split the institutional shareholders into two financial performance groups, one classified as high performance and the other low performance. The researchers were able to confirm that the relationship between environmental based CSP and institutional shareholding was positive and statistically significant for the high performing group, but statistically insignificant for the low performance group. These findings confirm the previous findings of the research studies already discussed above (Graves & Waddock, 1994; Cox et al.,

[8] ISO 14001 is an international standard on environmental management issued by the International Organization for Standardization (ISO) to help companies all over the world to manage their environmental responsibilities (ISO, 2017)

[9] See, for example, Coffey and Fryxell (1991); Graves and Waddock (1994); Healy et al. (1999); Bushee and Noe (2000); Cox et al. (2004), and Mahoney and Roberts (2007).

2004), where financial performance was used as control variable, and was found to be significant related to institutional shareholding. This implies that as much as institutional investor have started showing interest in ESG issues and began to take them into account when making investment decisions (Graves & Waddock, 1994; Mahoney et al., 2007), the financial performance of the company still remains the priority for the majority of institutional investors.

The shortcoming of this research study was the fact that the data used was only measured for one year and the method used to measure CSP was a binary variable. The use of a binary variable does not account for the complexities of the many factors that have to be taken into account when measuring the CSR activities of a company.

2.5 Institutional shareholders investment views and CSP

To understand why this positive relationship between CSP and institutional shareholding exists, Petersen and Vredenburg (2009) conducted a case study on nine oil and gas companies in Canada who viewed themselves as socially responsible. In total the case study involved interviews with executives from nine companies and nine of their largest institutional investors. The aim of the study was to find out whether and why institutional investors chose to invest more in companies with better CSP, and what impact the different forms of CSP have on the investment decisions of institutional investors.

By comparing the responses received from the institutional investors and the statements of managers, the study found that institutional investors often invest in companies who engage in CSR because they view good CSP to be a proxy for ethical and trustworthy management, and felt that it also represents good corporate governance. For the institutional investors, investing in companies with good CSP meant protected growth of future financial returns, implying a reduced investment risk. The results of this study supported the view that institutional investors mostly invest in high CSP companies for pragmatic (i.e. risk-return) reasons, rather than on moral considerations.

The behaviour of short-term institutional investors who, unlike long-term institutional investors, seem to be not largely unconcerned with CSR issues when making

investment decisions, is illustrated by the findings of the survey study conducted by Teoh and Shiu (1990) on 38 Australian investment institutions. Using responses received to a pre-tested questionnaire from financial analysts, investment managers and directors of the different financial institutions, the aim of the study was to assess the attitudes of institutional investors towards CSR, and whether there any considerations of CSR issue in their investment decisions.

The study found that the majority of the institutional investors surveyed were not against CSR but did not take CSR issues into account when making investment decisions. According to the study, institutional investors felt that most of the CSR disclosure at the time were mostly qualitative statements, and if the information on the CSR activities of the company was presented in quantifiable financial form and focused on product improvement, they were more likely to regard it as important and incorporate it into their investment decisions.

Recognising that a majority of the institutional investors in South Africa have long-term investment horizons like the rest of the world, De Jongh et al. (2007) conducted a survey study on the state of responsible investments in South Africa. This 2007 survey interviewed 32 principal officers, 19 Chief Investment Officers and 11 Chief Operating Officers from different financial institutions in South Africa. Amongst other things, the study was conducted to find out what role ESG issues played in the investment decisions taken by the institutional investors. The study reported that the majority of the institutional investors that were interviewed indicated that, although ESG issue were somewhat important, they did not invest in companies based on their ESG performance. Furthermore, the majority of these institutional investors viewed responsible investments as producing inferior returns.

Viviers (2007) attributes this behaviour and attitude towards SRI by institutional investors to a lack of skills by the investment professionals employed by the different institutional firms. She further claims that the investment professionals are not able to factor in ESG issues in their investment analysis as they fail to understand the long-term implications of such issues on the future financial performance of the

company, and that this problem is not only unique to South Africa, but seems to be one be one of the main constrains to the growth of SRI worldwide.

Additionally, Herringer et al. (2009) points out South African currently lacks rigorous, credible research to refute the belief by the majority of the institutional investors that the financial returns on SRI are lower compared to conventional investments.

2.6 Conclusion and Hypotheses

Even though there are research studies which have shown that not all institutional investors consider CSR issues when making investment decisions (see, for example, Teoh and Shiu, 1990; De Jongh et al., 2007), a reflection of above, the majority of the empirical research findings covered above seem to support the idea that there is strong positive relationship between a company's CSP and the percentage or number of institutional investors invested in it (Graves & Waddock, 1994; Mahoney & Roberts, 2007; Wahba, 2008; Saleh et al., 2010). The positive findings also seem to support the theoretical predictions of portfolio theory, with studies such as those of Wahba (2008) and Petersen and Vredenburg (2009) showing that there is possibility that the positive relationship between institutional shareholding and CSP is mainly driven by financial reasons from the perspective of the institutional investors, who possibly only invest in high-CSP companies simply because they view them as representing a lower investment risk. The current research study therefore hypothesises that:

H1: There is positive relationship between CSP and institutional shareholding for JSE-listed companies

H2: There is positive relationship between the environmental based CSP and institutional shareholding for JSE-listed companies

H3: There is positive relationship between the social based CSP and institutional shareholding for JSE-listed companies

H4: There is positive relationship between the governance based CSP and institutional shareholding for JSE-listed companies

CHAPTER 3 DATA AND METHODOLOGY

This Chapter discusses the sample and data used in the current research study, and additionally provides details on the regression methodologies applied, and the tests performed on the regression data.

3.1 Sample and Data

The following section details the process that was undertaken in the collection of the data used in the study.

The most critical information required to conduct the study was CSP and institutional shareholding data. The initial data population of the study comprised of all the companies included in the FTSE/JSE Africa All Share Index (ALSI)[10] at any time between the years 2009 and 2015, and consisted of 237 companies. The use of the FTSE/JSE Africa All Share Index was to ensure that the sample represents the bulk of the JSE by market capitalisation. This approach was different to the majority of the previous studies, which used methods such as choosing the Top 100 companies to study the relationship. In addition, listed companies not included in the ALSI generally suffer from liquidity and data problems.

The year 2009 was chosen because that is when Bloomberg started publishing ESG disclosure scores, which are used in this study as a proxy of CSP. Bloomberg produces four aggregated disclosure scores that aim to measure a company's level of ESG disclosure to the general public (Bloomberg, 2017a; Mueller, 2014). The first one is the Environmental Disclosure Score, followed by the Social Disclosure Score, the Governance Disclosure Score, and lastly the overall ESG Disclosure Score, with the latter measuring the overall degree of transparency across all environmental, social, and governance metrics (Mueller, 2014). The scores are based on a wide variety of detailed ESG data points collected by Bloomberg from the company's integrated financial statements, sustainability reports and company websites. According to Eccles et al. (2011), who conducted a study on the market interest in non-financial information based on Bloomberg ESG Disclosure scores, Bloomberg

[10] The FTSE/JSE Africa All Shares Index is a 'market capitalization-weighted index. Companies included in this index make up the top 99% of the all listed companies on the JSE' (Bloomberg, 2017b)

has one of the most comprehensive metrics used to compute ESG disclosure scores. Using the raw data provided directly by Bloomberg, Eccles et al. (2011) explains that Bloomberg uses 121 environmental metrics, 35 social metrics, and 17 Governance metrics to generate its scores. For each of the four groups of scores a range from 0.1 to 100 is used to rate the disclosure level for each of the companies based on The Global Reporting Initiative (GRI) guidelines[11] .
Table 1 below provides an overview of the data themes covered by the Bloomberg ESG disclosure ratings.

Table 1 ESG Data Themes

Environmental Disclosure	**Social Disclosure**	**Governance Disclosure**
Environmental fines	Fair remuneration policy	Number of independent Directors
Carbon emissions	Percentage of Woman in management	Percentage of independent Directors
Water usage	Work force diversity	Board meeting attendance percentage
Hazardous waste produced	Employee fatalities	Political donations
Wastes disposal management	Equal opportunity policy	Size of the board
Energy consumption	Community spending	Board meeting duration
Climate change policies	Employee turnover percentage	Number of board meetings in a year

Source: Bloomberg (2017a)

Each data point in the metrics is weighted in terms of importance and this makes it possible to assigned higher weights to the more relevant disclosures. The scores are also designed in a way that caters for the different industries in the market (Eccles et al., 2011). This ensures that each company is evaluated in terms of reporting data that is relevant to its respective industry, making the scores sophisticated enough to be comparable between industries. The final assigned score is determined by the degree of transparency of a company's reporting, measured in terms of how many of the measured metrics a company is reporting (Eccles et al., 2011; Mueller, 2014), with the company that discloses the most relevant information receiving the highest score, and the one that discloses the least relevant information scoring the lowest.

[11] The GRI is an international standards organization that assists different corporations around the world to understand and communicate their impact on ESG issues (Global Reporting Initiative, 2017)

The shareholding data used in this study was extracted from the Bloomberg terminal for the period 2010 to 2016. The institutional shareholding data reported by Bloomberg is supplied by Strate, South Africa's Central Securities Depository Company. Bloomberg classifies institutional investors into eight categories, as shown in Table 2 below. All other shareholders are considered to be non-institutional.

Table 2 Bloomberg institutional shareholder classification

Hedge Fund Managers	Insurance Companies
Private Equity	Public Retirement Funds
Banks	Investment Advisors
Mutual Funds	Pension Funds

Lastly, the accounting data used in this study regarding the company's financial performance was extracted from INET BFA. INET BFA was chosen due to the simplicity of presentation of the information. Although two different data sources were used in this study, only one source was used for any specific data element, and so the use of different data suppliers is not considered an issue.

The research question predicts that institutional investors are likely to invest more in companies with higher CSP ratings. Following the method applied in previous research studies on the relationship between CSP and institutional shareholding, a lag of one year between institutional ownership data and all independent variables was assumed (Graves & Waddock, 1994; Cox et al., 2004; Mahoney & Robert, 2007). Therefore, data for the independent and control variables used in the regressions was gathered from 2009 to 2015, whereas shareholding data was collected over the 2010 to 2016 period.

Missing ESG data reduced the sample of firms from 237 to 149 companies, and incomplete ESG data further reduced the sample of companies to 98 companies, with 532 combined observations between the years 2009 and 2016. The majority of the companies which did not have ESG data were listed property companies.

Additionally the researcher noticed anomalies in the reported shareholding data between the period of 2010 and 2013. Specifically, in the year 2013 there was a sudden sharp increase in both the percentage of shares held by institutional shareholders, as well as the number of institutional investors holding the shares of the respective companies, as reported by Bloomberg. Questions were sent to Bloomberg to clarify some of the observed anomalies. It became evident from the Bloomberg responses that the data for the period of 2010 to 2013 could not be considered credible due to Strate supplying incomplete shareholding data to Bloomberg. The main cause behind the incomplete data was that, before the introduction of the Protection of Private Information Act (POPI) by the end of 2013 by the South African government, there were some privacy concerns raised by some of the institutional shareholders which resulted in the incomplete institutional shareholding information being reported by Bloomberg for those years. The researcher decided that the data in this period should be removed from the final sample, which had the effect of substantially reducing the sample size from 532 observations to 254 observations, with the number of companies remaining at 98. This final sample is comparable to Wahba (2008) study discussed above which had 156 companies' and 435 observations. A summarized description of the process it took to arrive at the final sample of companies is provided in Table 3 below

Table 3 Sample process

	Number of Companies	**Number of Observations**
Number of companies in the original sample	237	761
Sampled reduced by :		
ESG Bloomberg disclosure scores not published	(88)	(0)
ESG Bloomberg disclosure scores incomplete	(51)	(229)
Subtotal	**98**	**532**
Incomplete institutional shareholding data	(0)	(278)
Final sample	**98**	**254**

The demographics of the final data sample are also provided below in Table 4. The data is summarised in terms of size. An observation can be made that the final

sample largely consist of medium size companies, showing a good range of the companies featured in the FTSE/JSE Africa All Shares Index.

Table 4 Sample by company size

Index	Number of Companies
FTSE/JSE Top 40	29
FTSE/JSE Mid Cap	44
FTSE/JSE Small Cap	25
Total Sample	**98**

3.2 Methodology

The following section is a detailed discussion of the measurement of different variables used in the study. It is divided into three main variables, namely dependent variables, independent variables, and control variables.

3.2.1 Regression variables

Dependant Variable – Institutional Shareholding:

Consistent with prior research on the topic (Graves & Waddock, 1994; Mahoney & Robert, 2007), Institutional shareholding is represented in two ways, namely by the percentage of ordinary shares owned by institutional investors, and by the number of institutional investors owning shares in each company.

To extract the data from Bloomberg the sampled companies were first sorted by their financial year end. The aim was to collect shareholding data two months after the financial year end for each of the companies. The period of two months is meant to coincide with when the annual financial statements (which include the ESG reports) are published. This is meant to capture the investment decision of institutional investors between the periods when the annual financial statements are published, and when the investment decision is made. The study assumes that the investment decision by the institutional investor is based on the historical CSP by that particular company (Mahoney & Robert, 2007; Fauzi et al., 2007).

Independent Dependant Variable - CSP and its components:

The key independent variable in this study is Corporate Social Performance (CSP). Previous studies on CSR research have used various proxies to measure CSP - examples include Graves and Waddock (1994) and others who used KLD ratings to measure CSP for North-American companies, while Mahoney and Robert (2007) used Jantzi Research Associates Inc (JRI) ratings for Canadian companies. Cox et al. (2004) used data developed by EIRiS to measure CSP for UK companies and Hoq et al. (2010) and Saleh et al. (2010) used self-administered CSP ratings referred to as Corporate Social Responsibility Disclosure (CSRD) ratings for Malaysian companies.

The CSP data for this research was drawn from Bloomberg ESG disclosure scores, which is one of the very few sources of CSP data for listed South African companies. As far the author is aware, this is the first study to use Bloomberg ESG disclosure ratings to study the relationship between institutional shareholding and CSP.

It is important to note that generally ESG disclosure ratings are not the same as CSP, but rather indicate the level to which a company is reporting on ESG data (Eccles et al., 2011). This means that the current data set does not allow for companies with poor CSP to be identified. This then creates the possibility that a company in this data set could have a good disclosure score, but not necessary have good actual CSP. Clarkson et al.(2008) argues that although this is a possibility, companies with superior CSP tend to convey their ‘‘type’’ by pointing to verifiable CSP indicators in their disclosure reports, which they deem to be difficult to copy by inferior type of companies (Clarkson et al., 2008, p. 304). Inferior performers, on the other hand, will choose to disclose less or be ‘‘silent’’ on their CSP, and will focus on disclosing more of the unverifiable acts of their CSP, which then makes it possible for investors and other stakeholders to identify these companies as the ‘‘average type’’(Clarkson et al., 2008, p. 304). In a market where financial resources are scarce and institutional shareholders have limited funds to invest, good corporate citizens must find a way to make sure they are chosen.

Additionally, the proposition that increased ESG disclosure is related to increase CSP performance is supported by the research results of a study by Al-Tuwaijri et al. (2004). This research study, conducted on an earlier sample of 198 US companies in

the year 1994 on the relationship between environmental disclosures, environmental performance and financial performance, found that not only is good environmental performance significantly associated with good financial performance, but it is also significantly associated with more extensive quantifiable environmental disclosures by the companies with good environmental performance.

Following from the previous studies on the research topic (Saleh et al., 2010; Cox et al., 2004; Mahoney & Robert, 2007), the present study also disaggregates the composite CSP rating into three sub-components, namely environmental performance, social performance and governance performance (*i.e.* the so-called ESG components). The rationale behind this approach is proposed by Griffin and Mahon (1997), who suggested that CSP measurement should be disaggregated into its individual components to avoid the loss of critical information as a result of combing the different components into a single composite measure of CSP. Therefore, the disaggregation provides the research study with the additional ability to assess which of the different forms of CSP is/are the key driver(s) of the relationship between CSP and institutional shareholding.

Although this is the first study to make use of Bloomberg ESG disclosure ratings to test the relationship between institutional shareholding and CSP, it is still possible to compare the results of the current study to the previous studies done on the research topic. This is made possible by the fact that the current study takes into account and measures the majority of the CSP topics covered in the previous studies. For example studies done by Graves and Waddock (1994) and Johnson and Greening (1999), which employ KLD ratings to measure CSP, describe CSP as a component of environmental, community, human rights, employee relations, diversity and customer's performance issues. Even in those instances where emerging market research studies by Hoq et al. (2010) and Saleh et al. (2010), using Corporate Social Responsibility Disclosure (CSRD) ratings as a proxy for CSP for Malaysian companies, define CSP as a combination of environmental, employee relations, community involvement and product safety issues.

Issues such as community, human rights, employee relations, diversity, customers and product safety, are now covered under the social performance component in the ESG disclosure ratings (Dorfleitner et al., 2015). One major difference is that when

Bloomberg ESG disclosure ratings are used to measure CSP, there is also an emphasis on governance, which was not present in previous studies.

Thus, the prominent studies which have been done on the research topic did not measure governance as a component of CSP. This is one of the shortcomings identified by Dorfleitner et al. (2015) with regards to KLD ratings, in the study that compared some of the most important sustainability rating providers in the world, specifically looking at CSP ratings by ASSET4 by Thomson Reuters, KLD and Bloomberg. This comparison highlighted that not only are the KLD ratings focused on American companies, but that the KLD rating system seems to produce the least amount of information when it comes to measuring governance disclosures.

The use of Bloomberg ESG disclosure ratings, which include the governance element as a measure of CSP, is important for several reasons. Firstly, the use of Bloomberg ESG disclosure ratings has brought a comprehensive amount of the social issues covered by the previous method in the measurement of CSP into a simple rating method. Eccles et al. (2011) identified that one of the main barriers to the widespread acceptance and use of non-financial information by the different investors and other related stakeholders is the lack of generally accepted reporting standards and information framework.

Secondly, Eccles et al. (2011) observed that the overall interest by the different investors was more in environmental and governance performance information than it was on social performance information. It was suggested than the stronger interest in environmental information than social issues could be attributed to the fact that the majority of the environmental effects are simpler to quantify and to integrate into valuation models, whilst the interest in corporate governance can be explained by the large amount of literature and research findings on the impact of governance on corporate financial performance and financial risk.

An example of this are the findings of the 2009 report compiled by The Organisation for Economic Co-operation and Development (OECD), which analysed the impact of the failures and weaknesses of corporate governance on the 2008 financial crisis, with a special focus on risk management systems and executive salaries companies (Kirkpatrick, 2009). The report found that the financial crisis can be to a significant extent be attributed to the failures and weakness in corporate governance systems,

which did not serve their intended purposes, which are to safeguard against excessive risk taking place in a significant number of financial services companies (Kirkpatrick, 2009).

Lastly, the use of Bloomberg ESG disclosure ratings bring additional credibility on the CSR research topic. Bloomberg ESG disclosure ratings are used by a large numbers of investors and related stakeholders. Bloomberg reported that in the year 2016, 12 242 unique users made use of the Bloomberg ESG data, with the number having grown from 5 172 users in 2012 (Bloomberg, 2016).

- *Control variables:*

The accounting data used for the financial control variables was extracted from INET BFA terminal for the years 2013 to 2015. Following the previous research studies on the relationship between CSP and institutional shareholding (Graves & Waddock, 1994; Cox et al., 2004; Mahoney & Robert, 2007; Fauzi et al., 2007; Hoq et al., 2010), the control variables used in the study include financial performance, company size, leverage, and industry classification.

The study controls for the financial performance of the companies because the accounting profits which a company generates are expected to be very influential in the market valuation of the company by institutional investors (Johnson and Greening, 1999). Return on assets and return on equity are both used as a proxy for financial performance (Mahoney & Robert, 2007; Hoq et al., 2010). Return on assets is measured as profits before interest and tax, divided by total assets. Return on equity is measured as the ratio of taxed profits attributable to ordinary shareholders, divided by the ordinary shareholders' funds

The study also controls for the size of the company based on the research findings by Elyasiani and Jia (2010) which showed that Institutional investors have a preference in investing in larger well established companies. The research study was investigating the relationship between company's performance and the level and stability of institutional shareholding for US companies between the years 1992 to 2004. Graves and Waddock (1994) has also theorised that some institutional investors prefer to invest in smaller companies as their investment holdings are likely to be significant, which will allow them to able to influence decisions taken by the

management of the company. In the current research study company size is measured as the natural logarithm of the total assets (Graves & Waddock, 1994). The study makes used of logged values in order to minimize the impact of extreme numbers and to achieve normality of the variable.

The company's leverage was included as a control variable based on the research findings by Tong and Ning (2004). When looking at whether the capital structure of a company affects its institutional shareholding for US S&P 500 companies over 1997–2001 period. The study found that company's debt ratio is negatively related to the number of institutional investors. Chaganti and Damanpour (1991) argues that the high risk of insolvency often associated with the more indebted companies is likely to discourage some institutional investors in holding shares in that company. The company's leverage in the study is measured as the ratio of total debt over total assets (Mahoney & Robert, 2007).

Lastly, the study controls for the different sectors applicable to our selected sampled (Graves & Waddock, 1994). The sector dummy variables were created using the Global Industry Classification Standards (GICS), which group companies into 11 economic groups as from the year 2016 (MSCI, 2016). The companies where classified according to the following GICS sectors ,Consumer, Energy, Financials, Health Care ,Industrials, IT, Materials, Real Estate, Telecommunication. A summary of the sampled companies grouped by their sector is provided Table 5 below.

Table 5 Sample industry classification

Sector	Number of Companies
Consumer	28
Energy	1
Financials	16
Health Care	5
Industrials	10
IT	3
Materials	22
Real Estate	10
Telecommunication	3

3.3 Descriptive Statistics

The next section discusses the descriptive statistics from the final sample used in the study. Descriptive statistics provide simple summaries about the research data and are used to compare the quantitative features for each of the variables in the sample. The descriptive statistics for this research study are reported in Table 6 and Table 7 below. Table 6 show the descriptive statistics of original data before some of the variables are winsorised and logged. The reported results on Table 7 were after the data was winsorised and logged.

Table 6 Descriptive Statistics

Stats	PERC_IS	NUMBER_IS	ROA	ROE	ASSETS	LEVERAGE	ESG	Env	Soc	Gov
N	254	254	254	254	254	254	254	231	244	253
Mean	71.41	499.11	9.65	15.25	101 021.00	0.50	37.49	27.53	44.20	58.35
Median	77.16	478.00	8.63	15.16	20 100.79	0.49	37.76	26.36	43.86	57.14
SD	24.48	226.72	14.42	18.75	268 888.00	0.25	12.27	13.73	16.97	8.14
Min	12.81	64.00	-75.08	-88.57	1.32	0.03	11.16	2.33	5.26	32.14
Max	100.00	1 124.00	72.29	74.15	1 979 349.00	1.21	62.66	65.29	78.95	82.14

Table 7 Descriptive Statistics (Winsorised and Logged)

Stats	PERC_IS	NUMBER_IS	ROE	ROA	Log ASSETS	LEVERAGE	ESG	Env	Soc	Gov
N	254	254	254	254	254	254	254	231	244	253
Mean	71.41	499.11	9.68	16.09	9.90	0.50	37.49	27.53	44.20	58.35
Median	77.16	478.00	8.63	15.16	9.91	0.49	37.76	26.36	43.86	57.14
SD	24.48	226.72	10.61	13.75	1.77	0.25	12.27	13.73	16.97	8.14
Min	12.81	64.00	-6.95	-8.70	5.47	0.03	11.16	2.33	5.26	32.14
Max	100.00	1124.00	36.00	49.02	13.24	1.21	62.66	65.29	78.95	82.14

An assessment of the research data as reported on Table 7 shows that on average, institutional shareholders owned and held about 71 percent of the ordinary shares of

the companies in the study. One can observe that there is a significant variance in the reported institutional shareholding for each of the companies, from a low of 12.8 percent to a maximum of 100 percent. A look at the number of institutional investors holding shares in each of the companies within the researched period, shows that on average the number of institutions holding shares was about 478, with a minimum of 64 and a maximum of 1124.

The average overall Bloomberg ESG Disclosure Score for the companies in the study is 37.49 with a minimum score of 11.16 and maximum score of 62.66. The standard deviation of 12.27 shows that there is some significant variance in the reported scores among the different companies in the study. Table 7 further reveals that the recorded ESG Disclosure sub-components scores have some distinct differences. For instance, one can observe that the governance disclosure score is the most reported, showing 253 observations. These scores also show the highest mean at 58. The reported governance disclosure scores are also exhibit a fairly low variation compared to the other ESG disclosure sub-components, showing a standard deviation of 8.13. There seems to be low disclosure for both environmental and social issues by the companies in the study, with the environmental issues being reported the least. Environmental disclosure show a recorded minimum score of 2.3, and a maximum score of 65.28 from a total of 231 observations. The environmental disclosure figures are the lowest recorded figures among the ESG disclosure sub-components. Additionally, the reported social disclosure scores are found to exhibit a fairly big variation compared to the other ESG disclosure sub-components, showing a standard deviation of 16.97.

One of the contributing factors to the level of disclosure among the ESG sub-components could be the fact that currently there are no prescribed legislative requirements for JSE listed companies to disclose on environmental and social issues. On the other hand, the disclosure on governance issues in the form of King Reporting[12], is one of the requirements for a company's listed on the JSE (Visser, 2005).

[12] The King Report on Corporate Governance in South Africa was first published in 1992 by the Institute of Directors South Africa and revised in 2003. It encourages companies to annually disclose the nature and extent of its social, transformational, ethical, safety, health and environmental policies and practices (Institute of Directors South Africa, 2016).

Another notable observation that we can make from Table 7 is with regard to the control variables used in the study. Starting with the two measures of the company's financial performance, ROE and ROA - both variables exhibited extreme values in their data set, which were classified as outliers. It has been found that in a multiple linear regression, the ordinary least of squares estimator is very sensitive to the presence of outliers in the independent variable (Jadhav & Kashid, 2014). To handle these problems in the data set, thereby limiting the effect of the outliers, winsorization of the estimators is proposed. Both ROE and ROA variables were therefore winsorized at the 5% level. The winsorization resulted in 13 of the 254 observations being affected for each of the variables (see Appendix A for a graphical comparison of the variables before and after winsorization).

Comparing the winsorized data in Table 7 to Table 6, one can observe that there are no major difference between figures for both ROE and ROA, apart from a change in the reported minimum and maximum figures. The standard deviation for ROE went from 14.42 to 10.61, and the average return on equity went from 9.65 percent to 9.68 percent. For ROA the standard deviation moved from 18.75 to 13.75, and the average return on assets went from 5.25 percent to 16.09 percent. The new standard deviation for both variables are still fairly high and show volatility in the data set. This is regarded as showing a realistic representation of the distinct differences in the financial performance of the different companies in the studied sample.

Looking at Table 6, showing the original data before it is transformed, one can see that although the average asset value for the companies in our data set was about R101 billion, a significant majority of the companies in the study had assets worth less than R50 billion, with an overall median at R20 billion. This unevenness in the data set caused the standard deviation for this variable to be extremely high at R268.9 billion. Additionally, the variable has outlying data which causes it to have a positively skewed distribution. Therefore, in order to achieve a normal distribution in the variable, a natural logarithmic transformation was applied to assets (see Appendix A and Table 7 for the results) (UCLA, 2017).

Lastly, the average total debt over total assets for the companies in the sample was 50%, and almost equal to the median figure of 49%.

3.4 Pearson Correlation

This section discusses the unconditional correlation between the variables. The test for the association between the variables is done through the use of a Pearson correlation matrix, which measures the strength and direction of the linear relationship between the variables (UCLA, 2017). The results of the Pearson's correlation matrix for this research study are reported in Table 8 below.

Table 8 Pearson Correlation Matrix

	PERC_IS	NUMBER_IS	ROE	ROA	Log_ASSETS	LEVERAGE	ESG	Env	Soc	Gov
PERC_IS	1									
NUMBER_IS	0.3945****	1								
ROE	0.0083	0.0482	1							
ROA	0.1117	0.091	0.7550****	1						
Log_ASSETS	0.0928	0.6146****	-0.1927***	-0.0838	1					
Leverage	0.1634***	0.2062****	0.0935	0.2185****	0.0248	1				
ESG	0.115	0.3509****	-0.1321**	-0.1898***	0.2628****	-0.1905***	1			
Env	0.0139	0.2767****	-0.0967	-0.1774***	0.1192	-0.1516**	0.9238****	1		
Soc	0.1272**	0.2146****	-0.0274	-0.0947	0.1814***	-0.2177****	0.8068****	0.5351****	1	
Gov	0.1273**	0.3401****	-0.1693***	-0.1830***	0.3040****	-0.1023	0.7276****	0.5741****	0.5113****	1

Correlation significance for (2-tailed).

p < .10 * p < .05 ** p < .01 *** p < .001 ****

The unconditional correlations in Table 8 above suggest that the variables in this study are highly correlated. There are high correlations observed over a significant number of the variables in the sample, but this did not result in multicollinearity issues in the data set. Using variance inflation factor (VIF) methodology to test for multicollinearity issues, it was confirmed that the models used do not suffer from multicollinearity. A comprehensive detail of the tests conducted for the regression models is provided in Section 3.5.1

A look at Table 8 reveals some interesting observations. Starting with the two measurements of institutional shareholding, one can see that percentage shareholding by institutional shareholders is highly correlated with the number of institutional investors. This suggests that an increase in the percent of shares held by institutional shareholders is often accompanied by an increase in the number of institutional investors holding the shares of that specific company.

Another observation is with regard to the accounting based financial performance indicators, ROE and ROA. From Table 8 one can see that there is no linear relationship between these variable with any of the measurements of institutional shareholding. This is unexpected, as institutional shareholders would be expected to pay attention to the company's financial performance, unless they in some instances invest in anticipation of improved financial performance. Furthermore, the size of the companies in the sample does not seem to be correlated with leverage, but is highly correlated with the number of institutional investors.

ESG disclosure and its sub-components are correlated with the numbers of institutional investors, but only two out of the four ESG disclosure scores are correlated with the percentage shareholding variable. The positive linear correlation between these variables is expected, and supports the main hypothesis of the current research study. Additionally, it is noticeable that the overall ESG Disclosure score, as well as some of its sub-components (except for social disclosure) are negatively correlated with the financial performance measures. This lends support to the view that CSP results in negative financial performance by the company (Mittal et al., 2008; Fisher-Vanden & Thorburn, 2011). According to Han et al. (2016) this negative correlation between the two variables normally occurs when companies who are at the early stage of engaging in socially responsible activities incur high operational costs related to these new ESG activities. The effect of the increase in their ESG scores as the result of the increase in their social responsible activities, is that in the short term there is a negative effect on their financial performance.

There also seems to be a positive association between the company's size and its ESG Disclosure. Lastly, leverage, on the other hand, seems to be negatively correlated with all ESG disclosure scores.

3.5 Regression assumption tests

The next section details the approach adopted by the current research study with regards to the data set-up and the regression analysis method used. Specifics are provided regarding the statistical tests that were conducted on the regression analysis and further details are provided regarding the effect of the statistical test results.

To answer the research question of whether there is a relationship between institutional shareholding and CSP, the study makes use of an unbalanced panel data and the Ordinary Least Squares (OLS) regression technique. The data in the study is classified as unbalanced panel data, due to the fact that the number of time periods (*i.e.* years) in the study are not the same for all individual companies being studied (Baltagi, 2005). Lastly the unbalanced panel data being used in the study is often the norm in typical financial empirical research settings (Baltagi & Song, 2006). When the researcher is collecting data (for example on countries or companies over a period of time), it is likely that some companies started recording the data later than others, or that some companies have stopped recording the data altogether (Baltagi & Song, 2006).

The panel data setup is chosen for a number of reasons. Panel data offers several advantages over cross sectional or time series data and also contains features of both data set-ups. With panel data you are able to achieve a more accurate estimation of the effect of the independent variables on the dependant variables in the regression analysis. This is made possible by the fact that panel data usually comprises of additional degrees of freedom and a greater sample variability compared to both cross-sectional and time-series data (Hsiao, 2007). Additionally, in the use of panel data helps with controlling for the individual-specific unobservable effects of the omitted variables in the regression model. It has been shown in the research literature that the real reason one may or may not find certain effects in the specified regression model is possibly due to one ignoring and not taking into account certain variables which are correlated with the stipulated independent variables in the model (Arellano, 2003).

This correlation between the observed explanatory variables and the unobserved ones is referred to as unobserved heterogeneity, and it has been found to be a

pervasive problem in cross-sectional data analysis. A major driving force in use panel data in econometric research has been the fact it is possible for one to control for the possibility of correlated, time-invariant heterogeneity without actually having to observe it (Arellano, 2003).

Lastly, one additional reason which is very much relevant in the current study is the fact that panel data makes it possible to identify complicated relationships in the data set, and therefore makes it easier to conduct studies involving dynamic models. Dynamic models are linear regression models containing lagged dependent variables (Hsiao, 2007). This is unlike time series data, which often forces one to rely on restrictive arbitrary tests to estimate the impact of the time adjustment patterns between current and lagged variables due the likelihood of collinearity between the current and lagged variables. Panel data relies on the unique characteristics of each of the studied subjects (companies in the current study) to reduce collinearity, and to make it possible to study the complex relationship between the current and lagged variables (Gujarati, 2003).

Before performing the regression analysis in the study, a choice had to be made between the Fixed Effects and Random Effects models. According to Gardiner et al. (2001), the major difference between the Fixed Effects and Random Effects models is one of inference in the data sample. With fixed effects analysis the researcher can only support inference about the group of companies in the studied sample. The random effects analysis, on the other hand allows, the researcher to infer something about the overall population which the studied sample was original drawn from. Fixed Effects also assume that the individual-specific unobservable effects of the omitted variables are correlated to the independent variables in the studied sample, while Random Effects assume they are not. Both Fixed Effects and Random Effects models work to remove unobserved explanatory variables bias by measuring the changes within the sample group. By measuring the changes within a group across time, one is able to control for the individual-specific unobservable effects of the omitted variables in the studied sample.

The Hausman Specification Test was used to help decide which of the two models should be applied in the study. The test checks whether the unique regression errors of individual-specific unobservable effects are correlated with those of independent

variables in the model, with the null hypothesis being that they are not (StataCorp, 2013).

Therefore the null hypothesis for the test is that the random effects must be used in the regression analysis and a p-value lo less than 0.05 indicates that the fixed effects must be applied. As shown in Figure 1 and appendix B, the Stata results of the Hausman test recommend that the Fixed Effects model be applied in the research study, as it possess the most efficient estimator of the relationship between the independent variable and dependant variables (StataCorp, 2013).

Model 1

chi2(4)	=	(b-B)'[(V_b-V_B)^(-1)](b-B)
		38.6
Prob>chi2	=	0.0000

Model 2

chi2(4)	=	(b-B)'[(V_b-V_B)^(-1)](b-B)
		38.14
Prob>chi2	=	0.0000

Figure 1 Hausman Test results (Models 1 and 2)

The Fixed Effects Model possesses a few advantages, including that it allows the researcher to control for unobserved heterogeneity and additionally regression results based on Fixed Effects result in small standard errors, which means that the regression analysis is more powerful (StataCorp, 2013).

3.5.1 OLS assumptions tests

The next step was conducting statistical tests to confirm that none of the OLS assumptions have been violated in the regression analysis. The rationale behind the tests is that most regression techniques (including panel data methods) rely upon the variables used in the analysis meeting a certain number of assumptions. In circumstances where these assumptions are not met, the regression results may be considered to not be trustworthy, resulting in what is described as either Type I or Type II error (Osborne & Waters, 2002).

The normal distribution of both the dependant and independent variables in the sample data is one of the four identified required assumptions to conduct regression analysis (Osborne and Waters, 2002). According to Field (2013), one can look for

normality in three ways, namely by using graphs, significance tests and/or numerical tests. Graphs involve the use of histograms and Q-Q plots, while numerical tests include the use of skewness and kurtosis measurements. Lastly, significant tests include the use of Shapiro-Wilk and Kolmogorov-Smirnov tests.

Shapiro-Wilk is the recommended significant test method for normality as Kolmogorov-Smirnov is not regarded as a powerful enough method to test for normality (StataCorp, 2013). The Shapiro-Wilk normality test for all the variables in Table 9 below provides evidence to reject the null hypothesis of a normal distribution for all the variables except for two.

Table 9 Shapiro- Wilk test for normality

Shapiro-Wilk					
Variable	**Obs**	**Statistic**	**Df**	**Z**	**Prob>z**
PERC_IS	254	0.9443	10.2370	5.4160	0.0000
NUMBER_IS	254	0.9815	3.4070	2.8550	0.0022
ROE	254	0.9488	9.4160	5.2210	0.0000
ROA	254	0.9571	7.8960	4.8110	0.0000
Log_ASSETS	254	0.9646	6.5020	4.3590	0.0000
LEVERAGE	254	0.9838	2.9880	2.5490	0.0054
ESG	254	0.9836	3.0250	2.5770	0.0050
Env	231	0.9850	2.5370	2.1580	0.0155
Soc	244	0.9940	1.0670	0.1500	0.4405
Gov	253	0.9968	0.5870	-1.2420	0.8929

A numerical skewness and kurtosis test was performed, where skewness defines the degree and direction of asymmetry of the variable, and kurtosis measures the heaviness of the tails of the distribution of the variable (Hamilton, 2012). A normal distribution has a skewness of zero, and the further away the skewness of a variable is from zero, the more likely it is to be not normally distributed. A look at the results from Table 10 below shows that half the variables are negatively skewed, while the

remaining ones are all positively skewed. One can observe that the majority of the variables are closer to zero and are very far from either minus or plus one (the latter two values being indicators of severe skewness).

Table 10 Skewness and Kurtosis normality test

Stats	PERC_IS	NUMBER_IS	ROE	ROA	Log_ASSETS	LEVERAGE	ESG	Env	Soc	Gov
N	254	254	254	254	254	254	254	231	244	253
Skewness	-0.6904	0.3190	0.7222	0.5606	-0.4453	0.2101	-0.0967	0.2797	-0.1347	-0.0006
Kurtosis	2.3999	2.4334	3.2836	3.5160	3.6258	2.5818	2.2977	2.5800	2.5723	3.0634

Additionally, a normal distribution has a kurtosis of three. Table 10 shows that three variables could be suffering from heavy tailed distributions, and the remainder from light tailed distributions. For all the variables the kurtosis does not seem to be severe, as they are not far away from a kurtosis of three.

The significance tests for normality showed that the null hypothesis should be rejected for 8 out of the 10 variables, and the numerical test results report mixed results with regards to the skewness and kurtosis. The study then considered the points raised by Field (2013), who argues that with large sample sizes it is very easy to obtain significant results from minor deviations from normality in the data set. This means that a significant test is not necessarily helpful in deciding whether the deviations from normality by a variable is sufficient to bias the statistical technique one applies to the data set. To reach a well informed decision on the normality of the data, researchers are further advised to plot their data and interpret the significance tests in conjunction with graphs in the form of histograms and Q-Q plots.

A visual inspection of data plots of the variables in Appendix C indicates that the independent leverage variable and the dependant percentage shareholding by institutional shareholders variable are the only variables that seem to suffer from severe non-normal data distribution, while the remainder of the variables do not seem to be far from normal distribution.

Although the study by Osborne (2002), discussed above, identified the normality of the variables as one of the four assumption that multiple regression researchers

must always test to ensure they achieve trustworthy inferences in the regression analysis, Grajales et al. (2013) point out that the assertion by Osborne (2002) about the normality of the variables being one of the assumptions required to run an OLS regression is incorrect. Evidence is provided in the latter study showing that the required assumption around normality to run an OLS regression does not pertain to the independent and dependent variables in the data set, but actually relates to the model's regression errors, which must be normally distributed.

Firstly Grajales et al. (2013) points out that the assumption around the normal distribution of regression errors is very useful because when it does hold true, the researcher can make trustworthy inferences using significance tests and confidence intervals about the regression parameters in the population which the studied sample was drawn from. This trustworthy inference holds true even in cases where the studied sample size is relatively small. This is because when the regression errors possess a normal distribution, OLS is the most efficient estimator of all unbiased estimators.

Secondly, the study also points out that that one can have cases where none of the independent and dependant variables in the data sample possess a normal distribution, but the regression errors are still normally distributed, making it possible for one to draw trustworthy inferences from the regression analysis. Using simulation to generate a large sample of dichotomous variables[13], the research study was able show that a strong relationship between the independent variables and the dependant variable may induce a bimodality to the marginal distribution of the dependant variable, even when the regression errors are normally distributed.

The study concludes by pointing out that while the test of normality of the both the independent and dependent variables in the studied sample maybe useful for the sake of being able to describe the distribution of the data points, it has less of bearing on whether the OLS assumptions for regression analysis are actually met. This means then that it is essential for one to test how the errors from the regression model are distributed in order to determine how well they match the assumption of normally distributed errors for the regression analysis being undertaken.

[13] Dichotomous variables are variables which contain only two type of categories.

According to Weisberg (2005) the errors of a regression model cannot be directly observed, as it is often impossible for one to be able to ascertain the parameters of the true regression model. Instead, one can examine the properties of the error terms by computing the residuals of the estimated regression model developed from the observed sample data. The residuals are the difference between the observed dependant variable and the predicted dependant variable value.

Using the two dependant variables in the data sample representing institutional shareholder stakes in companies, namely percentage of ordinary shares owned by institutional investors and the number of institutional investors owning shares in each company, residuals of the regression models used in the study was generated. To test for the assumption that the residuals are normally distributed, a significance test for normality and a graphical visual test were used.

The results of the Shapiro-Wilk normality test for all the residuals is shown in Table 11 and Table 12 below, which provide sufficient evidence to reject the null hypothesis of a normal distribution for all the residuals involving both dependant variables.

Table 11 Model 1 Residuals - Shapiro-Wilk normal distribution test

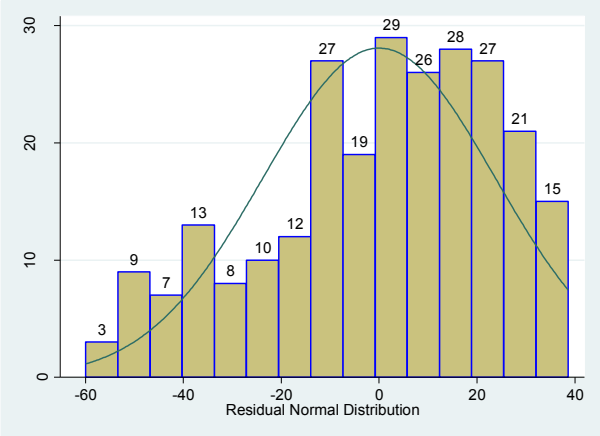
Residuals with the dependant variable being the percentage shareholding by institutional Investors					
Variable	**Obs**	**Statistic**	**df**	**z**	**Prob>z**
Res_1	254	0.95512	8.253	4.914	0.0000
Res_2	254	0.95495	8.285	4.923	0.0000
Res_3	231	0.94473	9.351	5.181	0.0000
Res_4	244	0.94807	9.219	5.162	0.0000
Res_5	253	0.94946	9.263	5.182	0.0000
Res_6	231	0.94483	9.335	5.177	0.0000
Res_7	244	0.94636	9.522	5.237	0.0000
Res_8	253	0.95058	9.057	5.13	0.0000

Table 12 Model 2 Residuals - Shapiro-Wilk normal distribution test

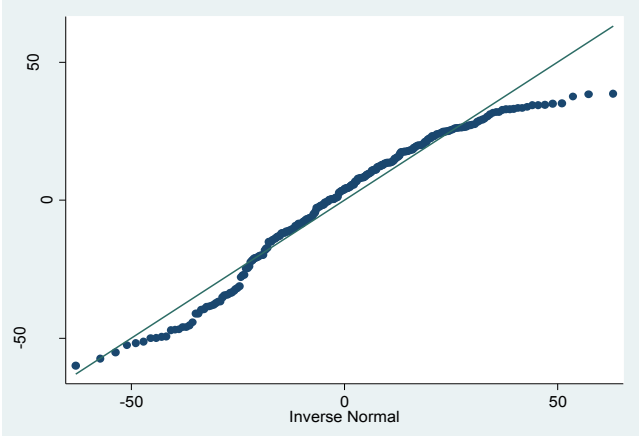
Residuals with the dependant variable being the number of institutional Investors					
Variable	**Obs**	**Statistic**	**Df**	**z**	**Prob>z**
Res_1	254	0.96957	5.597	4.01	0.00003
Res_2	254	0.97682	4.263	3.376	0.00037
Res_3	231	0.96523	5.884	4.107	0.00002
Res_4	244	0.97529	4.386	3.436	0.0003
Res_5	253	0.97252	5.036	3.764	0.00008
Res_6	231	0.9677	5.466	3.936	0.00004
Res_7	244	0.98173	3.244	2.734	0.00312
Res_8	253	0.98066	3.544	2.946	0.00161

As previously discussed, in order for one to reach a well informed decision on the normality of the data, the graphical tests must also be considered. From the visual inspection of data plots of the residuals presented in the form of histograms and Q-Q plots in Figure 2 below, it is clear that the residuals generated from the dependant variables representing percentage of ordinary shares owned by institutional investors are not normally distributed, whilst those from the dependant variable representing the number of institutional investors owning shares in each company possess a normal distribution.

Histogram

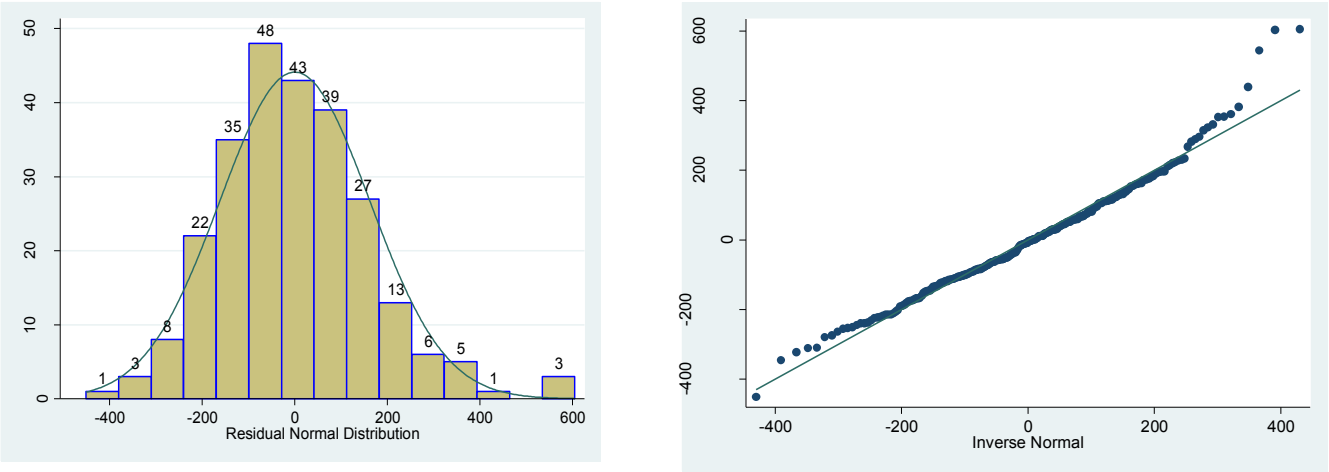


Q-Q Plots



a) Residuals with the dependant variable being percentage shareholder by institutional Investors

Histogram **Q-Q Plots**



(b) Residuals with the dependant variable being the number of Institutional Investors

Figure 2 Residuals - Graphical normal distribution test

A complete set of the visual tests for normality conducted on the residuals from the models featuring both dependant variables are provided in Appendix D. From there one can see further evidence that for all the models where percentage shareholder by institutional shareholders is applied as the dependant variable, the residuals are not normality distributed. However, for all the residuals for the dependant variable measured as the number of institutional investors holding shares in each company, the residuals seem to be normally distributed.

Therefore, the percentage shareholding by institutional shareholders could not be used in this study, as the residuals involving this dependant variable are not normally distributed and therefore violate one of the important assumptions of the OLS regression technique. Although the assumption of normally distributed errors is not required to provide unbiased and consistent regression coefficients when conducting regressions analysis, it is conditional that when this occurs the other OLS assumptions must be met (Grajales et al., 2013). Within this study it was also established that some of the other assumption are not met. Therefore any regression models involving percentage shareholder by institutional shareholders as dependant variable will not generate unbiased and consistent regression coefficients.

Additionally, when it comes to small data samples, the violations of the normality distribution of the regression errors leads to untrustworthy inferences (Grajales et al., 2013). This meant that the rest of the current research study will focus only on the number of institutional investors holding shares in a company as a measure institutional shareholding. This is not only done to ensure that the regression model used in the study results in unbiased and consistent regression coefficients, but it also to ensure that the regression models used will result in trustworthy inferences on the relationship between the independent and dependant variables.

The next regression assumption test conducted was for multicollinearity. Multicollinearity occurs when there is correlation among independent variables. According to Wooldridge (2009), when variables are correlated, it becomes extremely difficult for the OLS model to determine the true effect of independent variables on the dependant variable. The variance inflation factor (VIF) is used in this study to assess multicollinearity, as it is one of the most commonly used and powerful measures of multicollinearity (Cohen et al., 2013).

Table 13 on the next page shows the results of the VIF procedure to test for multicollinearity on two of the models applied in the study (see Appendix E for a complete set of test results). This confirmed that for all the models used in the study none suffer from multicollinearity. A rule of thumb in the research literature is that a VIF that is equal or less than four indicates that there are no multicollinearity issues with the independent variables, and a VIF equal of greater than ten may suggest high multicollinearity, which may require further investigation by the researcher (Chatterjee & Hadi, 2012).

The tolerance associated with each independent variable, defined here as the 1/VIF, is often used by researchers to check on the degree of collinearity of the independent variables. A VIF of 10 is comparable to a tolerance value of less than 0.1 (StataCorp, 2013).

Table 13 Multicollinearity test

Model 1

Variable	VIF	1/VIF
ESG	1.13	0.888047
Log_ASSETS	1.11	0.897833
ROA	1.05	0.948884
LEVERAGE	1.05	0.950838

Model 2

Variable	VIF	1/VIF
ESG	1.14	0.875734
LEVERAGE	1.08	0.922119
Log_ASSETS	1.08	0.922616
ROE	1.08	0.926969

Lastly, the models used were tested for the both heteroscedasticity and autocorrelation. OLS regressions are based on the assumption that the regression errors are independent (Chatterjee & Hadi, 2012**)**. Autocorrelation occurs when this assumption is violated and error terms are found to be correlated. Correlated error terms present a number of issues in the regression analysis. Autocorrelation not only results in biased OLS estimates of standard errors and significance levels, but also leads to inefficient estimation of the regression coefficients (Grajales et al., 2013).

To test for autocorrelation this research study applied the Wooldridge (2002) test for autocorrelation as suggested by Torres-Reyna (2007). The Wooldridge (2002) test for autocorrelation is the preferred method to test for autocorrelation due to the fact that it is easy to apply and requires few assumptions. It has also been found to have powerful properties even when applied to small data samples (Drukker, 2003). The null hypothesis for the test is that the regression errors in the models are independent, and a p-value greater than 0.05 indicates that there is an autocorrelation of errors.

Figure 3 below presents the results for the Autocorrelation test. From there one can see that autocorrelation is reported as present. For the remainder of the Autocorrelation tests see Appendix F.

Model 1	Model 2
Wooldridge test for autocorrelation in panel data	Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation	H0: no first order autocorrelation
F(1, 65) = 17.193	F(1, 65) = 16.563
Prob > F = 0.0001	Prob > F = 0.0001

Figure 3 Autocorrelation tests

One of the assumption for OLS regressions is that of homoscedasticity. Homoscedasticity is defined as the constant variance in the regression errors across all the independent variables in the regression model. Heteroscedasticity is present where the variance in the error terms is found to be non-constant among the different independent variables.

According to Weisberg (2005), when the variance in the regression errors is different across the independent variables, under the condition that there is no autocorrelation occurring, the OLS estimators can still be unbiased and consistent but will not be regarded as efficient. Without an efficient estimator from the OLS regression technique, the effect of heteroscedasticity is that the regressions analysis will result in untrustworthy inferences between the dependent and independent variables. The untrustworthy inferences are due to the fact that the calculated confidence intervals, as well the F test and t statics, are considered incorrect.

To test for heteroscedasticity, Torres-Reyna (2007) suggests that the StataCorp (2013) command xttest3 be used. The command computes a modified Wald statistic for GroupWise heteroscedasticity of the regression errors in a fixed effects regression model (Baum, 2001). The null hypothesis is homoskedasticity in the regression models, and a p-value greater than 0.05 indicates that heteroskedasticity is present. Results from the heteroscedasticity test as shown in Figure 4 below indicate that heteroscedasticity is present in the regression models used in the current research study. For the remainder of the heteroscedasticity tests see Appendix G.

Model 1	Model 2
Modified Wald test for groupwise heteroskedasticity in fixed effect regression model	Modified Wald test for groupwise heteroskedasticity in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i	H0: sigma(i)^2 = sigma^2 for all i
chi2 (98) = 5.2e+32	chi2 (98) = 1.1e+33
Prob>chi2 = 0.0000	Prob>chi2 = 0.0000

Figure 4 Heteroscedasticity tests

To account and address the problem of autocorrelation and heteroscedasticity in the regression models and to ensure that the OLS estimates standard errors are robust and consistent, the Huber-White estimation method for standard errors was applied (StataCorp, 2013). The Huber-White or sandwich estimator is a well-known correction method which can be applied in the OLS regression analysis to obtain better confidence intervals, F tests and t statics, by correcting the asymptotic standard errors and producing robust standard errors (Maas & Hox, 2004). According to Maas and Hox (2004), in instances where there is heteroscedasticity in the regression model, the Huber-White estimator remains a consistent estimator of the covariances of the regression coefficients. The outcome is that inferences based on the robust standard errors become less dependent on the assumption of normality but at the cost of sacrificing some statistical power.

3.6 Regression Procedure and Models

The following section describes the regression method used to examine the relationship between institutional shareholding and CSP.

As indicated above, the study employed a fixed effects panel regression model to explore the relationship between institutional shareholding and CSP. The research literature on the relationship between institutional shareholding and CSP does not provide a clear guideline on the appropriate length of the lagged effect of institutional ownership and CSP. Most previous studies on the topic applied one year lags (Graves & Waddock, 1994; Cox et al., 2004; Mahoney & Robert, 2007; Fauzi et al., 2007; Hoq et al., 2010). This study therefore also applied a one year lagged effect between the institutional ownership and CSP data, following the method applied in the previous studies (Graves and Waddock, 1994; Mahoney & Robert, 2007).

To investigate the research question regarding the relationship between institutional shareholding and CSP, the study utilises eight separate regressions models using panel data. In all eight regressions models, the number of institutional investors holding shares in a company is a proxy for institutional ownership.

Consistent with the method applied by Cox et al. (2004) and Mahoney and Robert, (2007) two of the eight regressions models used in the study included a composite measure of CSP measured by the Bloomberg ESG disclosure score. In addition to using size and leverage as the control variables, the first regression model also used ROA as the financial performance control variable, with the second model using ROE to measure financial performance.

Furthermore, six similar regressions were performed, but these included the individual components of CSP in place of the composite measure of CSP, to capture the different forms of CSP. The different forms of CSP were measured by the three different components of the Bloomberg ESG disclosure scores, namely the Environmental Disclosure Score, followed by the Social Disclosure Score and the Governance Disclosure Score.

The panel regression models for the study were thus as follows:

Model 1

$$Y_{i,t} = \beta_0 + \beta_1 ESG_{i,t-1} + \beta_2 ROA_{i,t-1} + \beta_3 SIZE_{i,t-1} + \beta_4 LEVERAGE_{i,t-1} + \alpha_i + \varepsilon i_{,t}$$

Model 2

$$Y_{i,t} = \beta_0 + \beta_1 ESG_{i,t-1} + \beta_2 ROE_{i,t-1} + \beta_3 SIZE_{i,t-1} + \beta_4 LEVERAGE_{i,t-1} + \alpha_i + \varepsilon i_{,t}$$

Model 3

$$Y_{i,t} = \beta_0 + \beta_1 Env_{i,t-1} + \beta_2 ROA_{i,t-1} + \beta_3 SIZE_{i,t-1} + \beta_4 LEVERAGE_{i,t-1} + \alpha_i + \varepsilon i_{,t}$$

Model 4

$$Y_{i,t} = \beta_0 + \beta_1 Soc_{i,t-1} + \beta_2 ROA_{i,t-1} + \beta_3 SIZE_{i,t-1} + \beta_4 LEVERAGE_{i,t-1} + \alpha_i + \varepsilon i_{,t}$$

Model 5

$$Y_{i,t} = \beta_0 + \beta_1 Gov_{i,t-1} + \beta_2 ROA_{i,t-1} + \beta_3 SIZE_{i,t-1} + \beta_4 LEVERAGE_{i,t-1} + \alpha_i + \varepsilon i_{,t}$$

Model 6

$$Y_{i,t} = \beta_0 + \beta_1 Env_{i,t-1} + \beta_2 ROE_{i,t-1} + \beta_3 SIZE_{i,t-1} + \beta_4 LEVERAGE_{i,t-1} + \alpha_i + \varepsilon i_{,t}$$

Model 7

$$Y_{i,t} = \beta_0 + \beta_1 Soc_{i,t-1} + \beta_2 ROE_{i,t-1} + \beta_3 SIZE_{i,t-1} + \beta_4 LEVERAGE_{i,t-1} + \alpha_i + \varepsilon i_{,t}$$

Model 8

$$Y_{i,t} = \beta_0 + \beta_1 Gov_{i,t-1} + \beta_2 ROE_{i,t-1} + \beta_3 SIZE_{i,t-1} + \beta_4 LEVERAGE_{i,t-1} + \alpha_i + \varepsilon i_{,t}$$

Where $Y_{i,t}$ is the dependent variable as measured by the number of institutional investors holding the outstanding shares of each company, i, at time t. The independent variables are represented as follows: ESG represents the Bloomberg ESG disclosure score, Env represents the Bloomberg environmental disclosure score and Soc represents the Bloomberg social disclosure score and Gov represents the Bloomberg governance score. ROA is Return on Assets and ROE is Return on Equity, both measuring the company's financial performance. SIZE represents the natural logarithm of total assets and LEVERAGE represents total debt over total assets. The identity of each company is represented by i, and t represents the time period, while t-1 shows the effect of the lagged dependant variable. β_0 represents the shared constant term in the model and β is the coefficient of all the independent variables, α is the unobserved individual company effect and ε represents the error term.

This next chapter discusses the regression results.

CHAPTER 4 RESULTS AND ANALYSIS

In this chapter the regression results of the current study are discussed, which are then compared to those of previous research studies. Additional commentary is supplied to justify and analyse the findings of the study.

4.1 Regression results

4.1.1 Regression results for the composite measure of CSP

The results of the regressions of the composite CSP measure (Bloomberg's ESG score) against institutional shareholding are presented in Table 14 below. The results show that a statistically significant relationship could not be established between ESG disclosure and institutional shareholding, therefore failing to find evidence to support Hypothesis 1. Both models featuring the composite measure of ESG disclosure have a low positive coefficient of determination (0.07 and 0.06 for Model 1 and Model 2 respectively), which indicates a poor fit. The F-Statistics for both models are also insignificant.

Table 14 Regression Results for Models 1 and 2

Variables	**Model 1**	**Model 2**
(*t-Values in brackets)*	ROA	ROE
Dependent variable:		
Number of institutional Investors		
Independent variables:		
ESG disclosure score	0.1071 *(0.09)*	0.1834 *(0.15)*
Control variables :		
ROA	2.9314** *(2.19)*	
ROE		1.9382** *(2.10)*
Size	-24.6731 *(-1.18)*	-28.4536 *(-1.31)*
Leverage	9.8159 *(0.21)*	8.2905 *(0.18)*
R Square	0.0667	0.0608
F-Statistic	1.83	1.97
Type of panel data	Fixed Effects	Fixed Effects
Huber–White standard errors applied	Yes	Yes
Number of observations	254	254

Significance at the 10% level *

Significance at the 5% level **

A look at the control variables (see Table 14) indicate mixed results. The coefficients for the financial performance control variables are positive and similar for both Models 1 and 2. The difference is in their size, with ROA having a larger coefficient than ROE, but both variables are significant at the 10% significance level.

Additionally, even though the control variable for size possesses a negative coefficient and the leverage control variable a positive one, neither of these variables were found to have a statistical significant relationship with institutional shareholding.

4.1.2 Regression results for the components of CSP

With the first two regression results of the study having failed to find any significant evidence to support the hypothesized positive relationship between the composite measure of CSP and institutional shareholding, the next step was to explore whether the evidence supports Petersen and Vredenburg (2009) suggestion that institutional investors may be interested in the specific components of CSP. The regression results of the models that respectively tested the different aspects of CSP (the environmental, social and governance components of ESG disclosure) against number of institutional shareholders, are discussed next.

As can be observed from Table 15 and Table 16 below, no statistically significant relationship could be established between institutional shareholding for both environmental and social disclosure, therefore failing to find evidence to support Hypotheses 2 and 3. The research study was, however, able to find evidence in support of Hypothesis 4, having established a statistical significant positive relationship between a company's governance disclosure and its institutional shareholding at the 5% significance level.

The regression results from Models 3, 4, 6 and 7, featuring the independent variables environmental disclosure and social disclosure, suffer from a low R square values, and all have statistically insignificant F-Statistics. The coefficient signs for social disclosure scores are showing mixed results, with Model 4 showing a negative sign and Model 7 the opposite. The coefficient for all environmental disclosure scores are positive.

Models 5 and 8, which feature the governance disclosure as the independent variable, both have a significant F-Statistic at the 5% significance level, and

respectively explain 9.75% and 8.61% of the variance in institutional shareholding. According to the predictions of Model 5, holding all other variables constant, a 1% increase in the governance disclosure score in the preceding year leads to a 2.6 increase in the number of institutional investors holding shares in that particular company in the following year. According to the predictions of Model 8, the corresponding increase in the number of institutional investors is 2.4.

Table 15 Regression Results for Models 3 to 5

Variables	**Model 3**	**Model 4**	**Model 5**
(t-Values in brackets)	**ROA**		
	Environmental Disclosure Score	Social Disclosure Score	Governance Disclosure Score
Dependent variable:			
Number of institutional investors			
Independent variables:			
Environmental disclosure score	0.2350 *(0.22)*		
Social disclosure score		-0.0777 *(-0.08)*	
Governance disclosure score			2.6133** *(2.34)*
Control variables:			
ROA	2.6386* *(1.77)*	2.6499* *(1.77)*	2.8827** *(2.21)*
Size	-10.4489 *(-0.41)*	-24.2093 *(-0.93)*	-32.1984* *(-1.73)*
Leverage	8.1832 *(0.17)*	12.58997 *(0.26)*	18.3303 *(0.40)*
R Squared	0.0482	0.0539	0.0975
F-Statistic	1.01	1.28	3.29**
Type of panel data	Fixed Effects	Fixed Effects	Fixed Effects
Huber–White standard errors applied	Yes	Yes	Yes
Number of Observations	231	244	253
Significance at the 10% level *			
Significance at the 5% level **			

Table 16 Regression Results for Models 6 to 8

Variables	**Model 6**	**Model 7**	**Model 8**
(t-Values in brackets)	**ROE**		
	Environmental Disclosure Score	Social Disclosure Score	Governance Disclosure Score
Dependent variable:			
Number of institutional Investors			
Independent variables:			
Environmental disclosure score	0.3845 *(0.34)*		
Social disclosure score		0.0878 *(0.09)*	
Governance disclosure score			2.3912** *(2.13)*
Control variables :			
ROE	2.0246* *(1.92)*	1.7802* *(1.75)*	1.7927* *(1.98)*
Size	-16.9063 *(-0.64)*	-32.6730 *(-1.22)*	-35.2715* *(-1.82)*
Leverage	14.4133 *(0.31)*	14.5896 *(0.31)*	14.1914 *(0.32)*
R Squared	0.0525	0.0513	0.0861
F-Statistic	1.26	1.43	3.18**
Type of panel data	Fixed Effects	Fixed Effects	Fixed Effects
Huber–White standard errors applied	Yes	Yes	Yes
Number of observations	231	244	253
Significance at the 10% level *			
Significance at the 5% level **			

The regression results featuring the governance disclosure as the independent variable are not only showing statistically significant results but they are also displaying an improvement in the explanatory power of the regression models compared to all the other six models. Additionally one can observe that the co-efficient for the governance variable is very large compared to the other ESG disclosure components.

The financial performance control variable for five of the six models featuring the components of ESG disclosure were found to be significant at the 10% significance

level. The positive relationship for the financial performance control variables was stronger for Model 5, which features governance disclosure as the independent CSP variable compared to Model 3 and 4, which feature the Social and Environmental disclosure, improving the significance level from 10% to 5%. According to the predictions of Model 5, when holding all other independent variables constant a 1% increase in ROA in the preceding year leads to a 2.9 increase in in the number of institutional investors holding shares in that particular company in the year after.

Results from the rest of the control variables are as follows:

The control variable for size was found to be significant at the 10% level for all the models featuring governance disclosure component as the independent variable, but insignificant for all the models featuring the other ESG components. The co-efficient for all the models has been found to be negative, indicating a negative relationship between the size of a company and the institutional shareholding. For the majority of the models featuring ESG components (four out of six) this relationship could not be shown with any reasonable statistical significance, and even for the two remaining models the relationship had relatively weak statistical power at a significance level of only around 10%.

Lastly, the relationship between institutional shareholding and the control variable for leverage remained statistical insignificant throughout.

4.2 Analysis and discussion of results

The next section provides a detailed discussion of the observed regression results, while providing a comparison with results from previous research studies.

4.2.1 Overall CSP results

The failure to find statistically significant results in support of the hypothesis that there is a positive relationship between institutional shareholding and the composite measure of CSP, means that there is no strong evidence in the studied sample to support the results found by both Graves and Waddock (1994) and Mahoney and Roberts (2007) . Both these studies found a positive significant relationship between a composite measure of CSP and institutional shareholding, the former using the KLD system to measure CSP for 430 US companies between the years 1990 and

1991, and the latter using Jantzi Research Inc. (JRI) ratings to measure CSP for 298 Canadian companies from the year 1996 to 1999.

The country dynamics could be a significant contributor to the difference in the research findings between the studies highlighted above and the current study. Unlike the developed economies such as the USA and Canada, which have well developed SRI industries. Thus, for example, the 2016 report by the US Social Investment Forum (US SIF) on Sustainable, Responsible and Impact Investing Trends in the US notes that funds which are managed with ESG factors incorporated into the investment analysis, have grown by 14 times since first measured in 1995, and now stand at $8.10 trillion, which represents nearly 22 percent of the $40.3 trillion total funds under management (US SIF, 2016).

On the other hand, South Africa, like the other the emerging markets, still faces many challenges in the development of SRI. One of those challenges is the lack of skills by investment professionals involved in SRI, as pointed out by Viviers (2007). Furthermore, as highlighted by Herringer et al. (2009), unlike the developed markets South Africa currently lacks credible local research to refute the belief by the majority of the institutional investors that SRI focus reduces returns compared to conventional investments. Additionally, South Africa also lacks well-resourced public institutions whose sole mandate is to promote SRI and to conduct and produce credible research on the growth and the economic benefits of SRI compared to conventional investments. In this regard, Europe has the Eurosif, the US has US Social Investment Forum (US SIF), and Canada has the Responsible Investment Association (RIA), to mention but a few. Thus, Viviers et al (2009) not surprisingly comment that more research and improved collaboration is vital to grow the South African SRI sector.

The lack of a significant positive relationship in the current study between the composite measure of CSP and institutional shareholding is in line with De Jongh et al.'s (2007) survey, which found a lack of enthusiasm amongst South African institutional investors for the use ESG performance as an investment decision consideration. It is then plausible that this view may still be widely held by institutional investors, and this could therefore be the reason the current research

study was not able to establish a statistical significant relationship between institutional shareholding and the overall ESG disclosure.

Although there is an observed shortcoming with using ESG disclosure ratings as a proxy for CSP as discussed earlier in section 3.2.1, the most direct, and in many cases the only, way that investors have of judging a company's CSP activities is indirectly through its ESG disclosure. Hence the CSR literature includes a significant number of research studies that have used ESG disclosure as proxy to measure a company's CSP as indicated in the introduction and background section. Additionally it has been shown by Al-Tuwaijri et al. (2004), as discussed in detail earlier in section 3.2.1, that increased ESG disclosure is related to increase CSP performance. Therefore these results indirectly seem to imply that institutional investors in the studied sample appear not to consider ESG factors in their investment decisions.

Recent findings of a report compiled by Kigoda Consulting (2017)[14] on the sustainable and responsible investment practices of South Africa's biggest equity asset management companies can also help to explain the observed insignificant results for the composite measure of CSP. Focusing on the top ten asset management companies as end of June 2016, which at that point accounted for more than two thirds of the assets under management in South Africa. The Kigoda responsible investing ranking report utilises CRISA's five principles and practice recommendations to ascertain whether these companies have the requisite policy frameworks and governance structure in place to be able to implement ESG investments, and to effectively disclose information on their responsible investment activities and performance. Each company's performance against the CRISA principle was scored out of 100. The top performing company scored 82, but six out of the ten companies scored less than 50, with the lowest score being a 1.

These findings show that there is a wide disparity in the implementation and adoption of responsible investment practices as outlined in CRISA by South African asset managers. The reports points out that although nine of the ten asset management companies assessed indicated in some form over the past 3 years that

[14] Kigoda Consulting is a Cape Town based independent consultancy company specialising in research and analysis of political risk and environmental, social and governance (ESG) issues across sub-Saharan Africa. (Kigoda Consulting, 2017)

they endorse CRISA, this seems to be some form of “green washing”, especially by the poor performers. The reports notes that only five of ten assessed asset management companies supplied information detailing the governance structures and internal controls which these companies have implemented to ensure sufficient support for the responsible investment approach mandated by CRISA. Additionally only four of the institutional investors employ special staff focused on responsible investments.

According to a survey by Moodley (2013), the view by some South African institutional investors is that there are significant costs associated with integration of ESG principles in investment practices. The institutional investors thus pointed out that additional staff often have to be employed to implement and screen investee companies that do not meet ESG investment standards. Additionally, the adoption of CRISA increases the operational costs of doing business, as the Institutional investors have to invest financial resources in new investment processes and information systems to monitor and manage the compliance with the investment codes.

The Kigoda Consulting (2017) report clearly indicates that there is still a significant amount of work to be done before the majority of institutional investors can claim to be meeting their CRISA commitments. Thus, at the present moment, there seems to be some credibility to the current studies’ findings that South African institutional investors in the studied sample do not yet, with the exception of governance (discussed below), seem to factor ESG issues into their investment decisions.

The non-significant results from the current research study with regards to the composite measure of CSP, add credence to the proposition by Carroll (1979) that CSP should be treated as a multi-dimensional construct. The study failed to find a statistical significant relationship between institutional shareholding and the composite measure of CSP, but was able show a statistical significant positive relationship with regards to one of the components of CSP, as is discussed in the following sections.

4.2.2 Environmental based CSP

Even though the coefficient for environmental based CSP was positive, no significant relationship could be established between environmental based CSP and institutional shareholding, and therefore the study failed to find sufficient evidence either to support the research findings by Wahba (2008), or to dispute the findings by Mahoney and Roberts (2007). An emerging market study done by Wahba (2008) on 156 Egyptian companies in the year 2006 using certification for the international environmental management system standard ISO 14001 to measure a company's environmental performance, found a positive significant relationship between environmental based CSP and institutional shareholding. Mahoney and Roberts (2007) study for 298 Canadian companies using Jantzi Research Inc. (JRI) environmental ratings which are based on the company's environmental policies and product safety records in years from 1996 to 1999, found a negative significant relationship between environmental performance and institutional shareholding.

There are two main factors that could explain why the current study could not establish any form of relationship between environmental based CSP and institutional shareholding in the South African context.

The first is that the research on sustainability reporting indicated that environmental issues are the least reported by the majority of South African companies. Thus the discussion document by Baskin and Gordon (2005) on the state of corporate responsibility practices of emerging market companies highlighted that although South African companies were seen to be global leaders when it comes to sustainable reporting regarding social issues, the companies seem to be less advanced when it comes to environmental issues. This was based on the evidence from the 2004 KPMG survey of integrated sustainability reporting in South Africa, compiled by Visser (2004).

Furthermore, using a sample of 23 companies, which consisted of the best performing companies listed on the JSE's SRI index between the years 2010 and 2011, Van Zyl (2013) investigated the extent in which South African companies are promoting environmental sustainability. Using the sustainability and integrated reports of the companies, the research study found that the level of disclosures

relating to environmental sustainability by the companies remain very low. Instead of having quantitative disclosures, the companies are found to be using the environments disclosures for publicity and to make the companies look good using qualitative statements.

For South African companies a further complication is the many reporting options available. Janse van Rensburg and Struwig (2016), in an article on sustainability reporting in South Africa, point out that, besides the seventeen reporting standards internationally plus the Global Reporting Initiative's (GRI) general standard disclosure and indicators, South Africa has twelve initiatives of its own on sustainability reporting. These locally developed initiatives are made up of both mandatory legislative requirements and voluntary guidance initiatives, which have been created not only by the government but also by the JSE and South African market regulators.

The second plausible reason why this study failed to establish a relationship is with regard to the distinct measurement methods used to measure the environmental performance of a company. If one looks at the current research study, the descriptive statistics indicate that environmental issues in the studied sample are the least reported among the ESG disclosure components, as can be seen from it having the lowest amount of observations of the three CSP elements in the current study (see Table 6). In addition, in the research literature there is ambiguity with regards to the proper measurement of environmental performance, with different researchers using very different proxies to measure environmental performance - see, for example, the unique environmental proxies used by Mahoney and Roberts (2007) and Wahba (2008).

4.2.3 Social based CSP

The regression results for social based CSP coefficients showed mixed results, with one model finding a positive coefficient and the other a negative one. However, neither of the coefficients found were statistically significant, and hence no meaningful relationship could be established between social based CSP and institutional shareholding, failing to find sufficient evidence to either support the research findings by Coffey and Fryxell (1991) or that of Saleh et al. (2010). The Malaysian market study done by Saleh et al. (2010), using community involvement to

measure social based CSP for 499 companies, found a negative significant relationship between social based CSP and institutional shareholding, whilst US study by Coffey and Fryxell (1991), using the number of women on the board of directors as a proxy for social performance, found a positive significant relationship between social based CSP and institutional shareholding.

The possible reason why the current research study could not establish a relationship between the two variables, could be the reasons advanced by Eccles et al. (2011). As discussed earlier in this document, Eccles et al. (2011) suggest that the overall interest of investors is more on environmental and governance performance information than it is on social performance information. The stronger interest in environmental information could be attributed to the fact that unlike social issues, the majority of the environmental effects are simpler to quantify and to integrate into the valuation of companies. This argument is supported by research findings of Hoq et al. (2010), which suggest that funds which are donated towards good causes do not actually show the true extent of how much a company is actual socially responsible. Additionally, there is ambiguity with regards to the extent of how much activities such as philanthropy by the company actually help the company's public image towards its stakeholders.

From the above it is then plausible that one of the reasons that a relationship between social based CSP and institutional shareholding could not be established in the current research study, could be due to the fact that institutional investors find it hard to quantify the benefits of social activities of a company, and hence do not consider them in the investment decision.

4.2.4 Governance based CSP

As indicated in section 3.2.1, the few research studies on the relationship between CSP and institutional shareholding have focused on environmental and social based CSP, and have largely neglected governance based CSP. This is likely due to the fact that many of the measurement techniques used by researchers as company CSP proxies, such as KLD and EIRiS, only concentrate on the social and environmental issues, and do not consider governance. By employing Bloomberg ESG disclosure scores as a proxy for CSP, this study becomes to the author's knowledge the first to use all three components of ESG to explore how CSP

influences institutional shareholding. This means that no comparison can be made between the current study and previous research studies, with regards to the relationship between governance based CSP and institutional shareholding.

As hypothesized, the research study did find a positive significant relationship between governance based CSP and institutional shareholding. There are a number of plausible reasons of why this positive relationship between the two variables was established. The first one is that the majority of research studies on corporate governance and its influence on the company's financial performance have shown that better corporate governance has a positive effect on financial performance[15]. Claessens and Yurtoglu (2013) extensive survey of corporate governance research studies from the emerging markets, covering the period from 1987 to 2011, considers the many ways in which corporate governance may be important and how it affects companies in the different emerging markets, with a special focus on markets in Africa, Eastern Europe, Latin America, Middle East, and Southeast Asia. Some of the corporate governance research topics discussed include results on the impacts of ownership structure on corporate governance, the relationship between the company's ownership structure and financial performance, and the effects of legislative changes by the country on the company's corporate governance. The findings of the survey show that that companies in emerging markets are still faced with major corporate governance issues, which include factors such as the high prevalence of concentrated ownership structures, low institutional shareholding and having lack of access to outside funding. The study is able to show that an improvement in corporate governance creates a number of benefits for the company. Firstly it improves the chances of the company getting access to external funding, it lowers its cost of capital and it improves its financial performance. In addition to the highlighted financial benefits, corporate governance leads to better stakeholder relationships. To qualify its findings the study explains that the above benefits also rely on the strength of the country's governance systems.

[15] See, for example, Gompers et al. (2003); Cremers et al. (2005); Bhagat and Bolton (2008); Ammann et al. (2011); Essen et al. (2013); Zhu (2014); and Narayan et al. (2015). On the other hand, the findings of Core et al. (2006); Ertugrul and Hegde (2009); and Peni and Vähämaa (2012) are inconclusive.

The research results of the survey by Claessens and Yurtoglu (2013) also provide further evidence to support the findings of the Kirkpatrick (2009) report, which highlighted that improved corporate governance has the ability of mitigate financial crises in the market economy. The financial crises can occur when the impact of the failures and weaknesses in corporate governance of companies is large enough that it adversely affects whole market economy. A financials crisis not only has large economic costs but it has large social costs as well. This positive link between governance and improved financial performance could explain why institutional investors in the current research study have been found to be attracted to companies that display good disclosure scores. Additionally, the idea that institutional investors could be making investment decisions based on the investment merits of CSP support the findings of the previously mentioned research study by Petersen and Vredenburg (2009) on the motives of Canadian institutional investors in the oil and gas industry.

A further possible reason why institutional investors are likely to invest more in companies that show good governance score relates to the findings of the research study by Shrivastava and Addas (2014). Using Bloomberg ESG ratings from the 2011 financials report for US, European and Canadian companies from the S&P 100, EURONEXT 100 and the S&P/TSX 60 respectively, the study examined whether better corporate governance leads to more sustainable company policies in general. To measure for the quality of corporate governance the research study used board meeting attendance, the percentage of independent directors on the board of directors and the overall governance disclosure score. The proxy for sustainability was the composite ESG disclosure scores and the environmental disclosure scores.

The study found that sustainability scores (represented by both the composite ESG scores and the individual environmental disclosure scores) is greatly influenced by the governance disclosure scores. Furthermore, the study was able to show that companies who feature a large percentage of independent board of directors not only have higher sustainability disclosure but they are very likely to have developed and adopted climate change polices and are compliant with international sustainability standards like GRI.

In line with the above discussion, it is therefore possible that the positive relationship between governance disclosure and institutional shareholding found in this study is due to institutional investors viewing better corporate governance as having a positive effect on the company's financial performance and adoption of sustainable policies.

4.2.5 Control Variables

The results for the control variables are discussed next.

Financial Performance: The results of a positive relationship between the company's financial performance and institutional shareholding support the findings of Cox et al. (2004) and Graves and Waddock (1994), who were able to show that good financial performance by a company often leads to an increase in institutional shareholding. Institutional investors are attracted by good financial performance because accounting profits are expected to eventually result in an increased share price (Johnson & Greening, 1999).

Company Size: The negative coefficient of the size control variable, albeit only significant at the 10% level when governance based CSP was the main independent variable, could imply that the majority of the institutional investors on the JSE favour holding shares in small companies. This counterintuitive result was also found by Cox et al. (2004) in their study of UK short-term institutional investors, which found a significant negative relationship between institutional shareholding and company size as measured by assets.

According to Yan and Zhang's (2007) the preference of holding shares in small companies is often exhibited by short-term institutional investors, who are also known for only considering short-term financial rewards when making investment decisions. Yan and Zhang's (2007) study of US institutional investor's trading patterns from 1979 to 2003 found that short-term institutional investors were better informed compared to long-term institutional investors, and were better at predicting future share returns. The predictability was found to be stronger in small and growing shares than it is was for large well established companies. Short-term institutional

investors favoured investing in small companies due to the fact that the informational advantaged displayed by short-term institutional investors, was more in small companies due to the fact that these companies were faced with more uncertainty and the value of their shares is harder to evaluate.

Based on the evidence of the Yan and Zhang's (2007) and Cox et al. (2004) studies discussed above, with the observed results indicating that the majority of the institutional investors on the studied sample favour holding shares in small companies, this could also imply that by favouring to hold share in small companies, the investment behaviour of the institutional investors in the studied sample is one that is focused on short-term financial payoffs. This is also supported by the investment behaviour observed De Jongh et al. (2007) survey study of South African institutional investors.

This view is also supported by Bennett et al. (2003) study of US institutional investor's portfolio holdings and company's characteristics for US listed companies from 1983 to 1997. The study showed that institutional investors seem to prefer smaller and riskier companies since these shares provide the greatest opportunity for financial gains on their informational advantages. However, since more than 74% of the companies in the current research study are classified either as FTSE/JSE Top 40 or FTSE/JSE Mid Cap companies, it becomes debatable whether any can be truly be identified as small companies, and hence to what extent the above arguments are relevant in this case.

In general, though, the majority of studies have found a positive relationship between institutional shareholding and company size[16]. The main reasons why institutional shareholders are seen to favour larger well established companies, is due to these companies being mostly well-known and having built up sufficient resources, and they also having been shown to be less susceptible to financial failure.

Leverage: Although none of the models found significant results for the coefficient of leverage, the finding for this variable were unexpected, as its coefficient was found to

[16] See, for example, Duggal and Millar (1999); Dahlquist and Robertsson (2001) ; Huberman (2001) ; Ke and Petroni (2004) ; Elyasiani and Jia (2010); Hoq et al. (2010); and Saleh et al. (2010)

be positive. These results are unexpected in view of the assertion by Chaganti and Damanpour (1991) that the high risk of bankruptcy often associated with more indebted companies may discourage institutional investors from investing in these companies. Additionally the results contrast the findings of Mahoney and Roberts (2007), who studied institutional investors in Canada, and Tong and Ning (2004), who looked at the link between institutional investors in the US and companies' capital structures. Both these studies found a significant negative relationship between institutional shareholding and leverage.

A possible explanation for the positive coefficient on leverage for the studied sample of JSE-listed companies could be related to the findings of the survey conducted by Correia and Cramer (2008). This study, which investigated corporate finance practices of South African listed companies in relation to their cost of capital, capital structure and capital budgeting decisions, found that the majority of the companies in the studied sample exhibited low target debt-to-equity ratios, resulting in an exceptionally low use of debt financing. The study then argued that the majority of South African listed companies are highly undergeared, with negative implications for their returns on equity. Taking the findings of Correia and Cramer (2008) into account, the positive coefficient could mean (although there is not conclusive evidence in the current research study to support this assertion), that institutional investors are attracted to companies making efficient use of debt by borrowing more relative to an underleveraged sample group, thereby lowering their weighted average cost of capital (WACC), and improving shareholder returns.

The next chapter provides the conclusion to this research study, discusses the research limitations, and puts forward suggestions for future research.

CHAPTER 5 CONCLUSION AND RECOMMENDATIONS

This research study set out to examine the relationship between CSP and companies' institutional shareholding for a sample of companies listed on the South African Johannesburg Stock Exchange. With the majority of the studies on the dynamics of the relationship between the two variables being from developed countries, the study adds to the research literature on CSR by looking at the investment behaviour of institutional investors in response to companies' CSP from an emerging market perspective.

The study could not find evidence to support the hypothesis that there is a relationship between the composite measure of CSP and institutional shareholding. There was also no significant relationship between institutional shareholding and environmental and social based CSP.

The results of this study appear to support previous findings (see De Jongh et al., 2007) that companies' overall CSP performance are not yet a major consideration in South African institutional investors' equity investment decisions. The probable reasons behind this behaviour could be fact the that South Africa currently lacks credible research data to refute the notion that SRI investments produce inferior financial returns compared to conventional investments. Thus, as mentioned previously, South Africa currently lacks public institutions like Eurosif in Europe and US Social Investment Forum (US SIF) in the US. Furthermore there seems to be additional operational costs associated with the adoption of ESG investment codes like CRISA, leading to a number of the institutional investors' "green washing" their commitment to ESG investing, as shown in Kigoda Consulting's (2017) report.

When it comes to the relationship between institutional shareholding and the three different forms of CSP as measured by Bloomberg E, S and G disclosure scores, the study finds statistically significant (at the 5% level) evidence for a positive relationship only for corporate governance, and not for the proxies used for environmental and social based CSP. The lack of firm results on environmental CSP can possibly in part be attributed to the lack of environmental disclosure by a majority of the companies operating in South Africa, and similarly, with regards to

social CSP, many institutional investors may find it hard to quantify the value add of CSR activities such a philanthropy to the company (Hoq et al., 2010).

The statistically relationship found with regards to the governance based CSP and institutional shareholding is probably due to the widely accepted positive relationship between a company's corporate governance and its financial performance (Claessens & Yurtoglu, 2013). The fact that the current study failed to establish a relationship between the composite measures of CSP but was able to find a positive relationship with one of the components of CSP provides additional evidence to support the argument by Carroll (1979) that CSP must be treated as a multi-dimensional construct. The results also add support to the suggestion by Johnson and Greening (1999) that institutional investors distinguish between the different elements of CSP, and do not place the same weight on each in their investment decisions.

The research outcomes of the study should be useful to both companies already listed on the JSE and those who are planning to do a public listing, as it can clarify the CSR issues the companies can focus on to attract institutional investors to their companies, apart from good financial performance.

The identified limitation of the study is with regard to the availability of ESG data for JSE listed companies to be able to measure CSP. Even though the original sample of the companies listed on the FTSE/JSE Africa All Share Index (ALSI) consisted of 237 companies, only 98 companies formed the final sample of the research study as the rest of the companies lacked Bloomberg ESG data. The other issue was the period covered by the research study. Due to credibility issues with regards to the institutional shareholder data, only three years of data (2014 to 2016) were available for use in the final research study. It is therefore suggested that this research topic be revisited by future researchers as more data becomes available, and the research period increases. A further suggestion for future research is to perhaps take a more qualitative approach involving surveys and interviews with asset managers and/or company management on their views of the desirability of ESG performance from an institutional investment perspective, as an update to the previous research.

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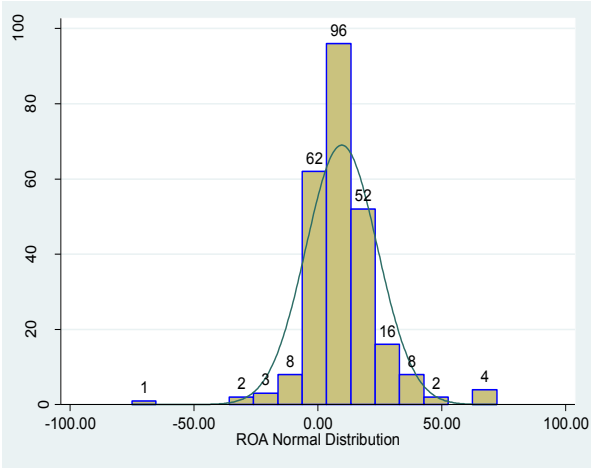
APPENDIX A Graphical comparison of Transformed Variables.

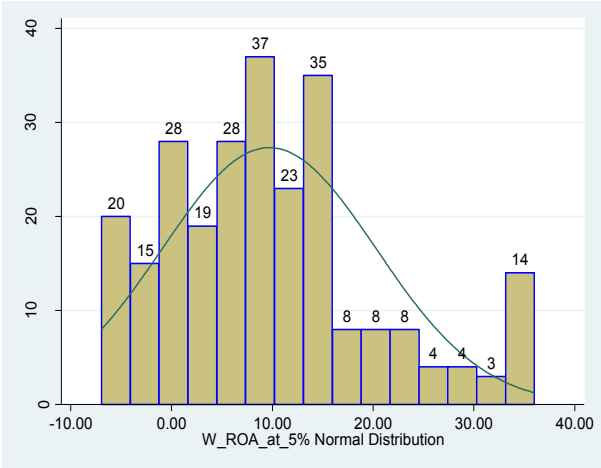
A graphical comparison of the variables before and after winsorization.

ROA Normal Distribution Graph - Histogram

Before Winsorization:

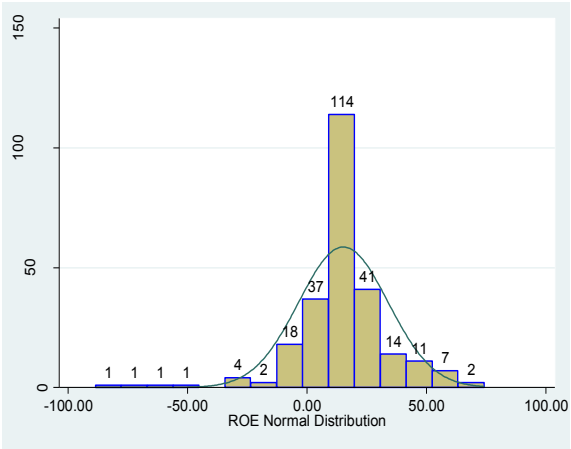


After Winsorization:

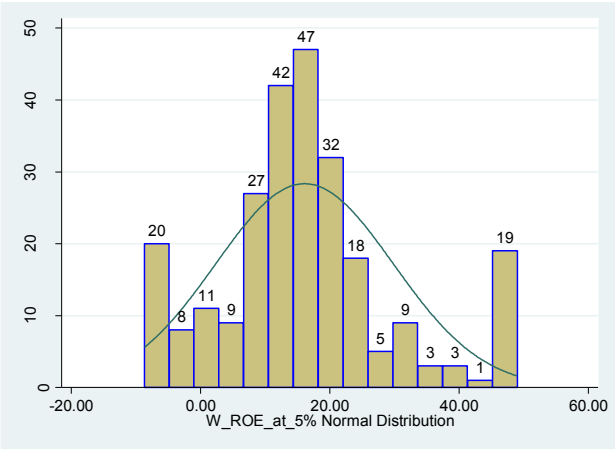


ROE Normal Distribution Graph - Histogram

Before Winsorization:

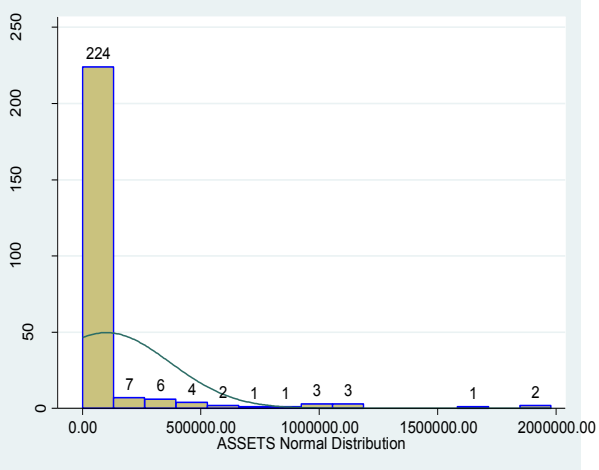


After Winsorization:

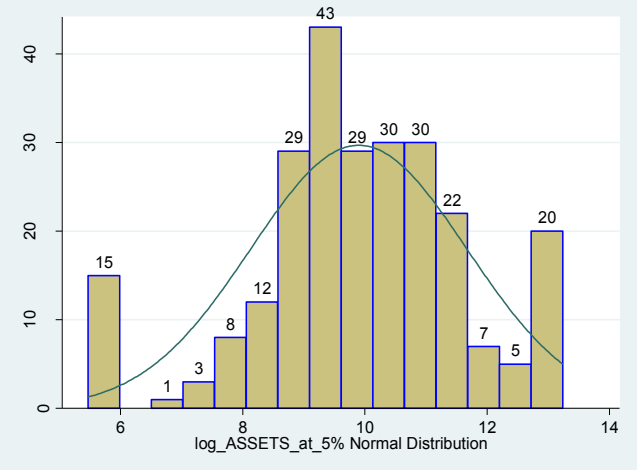


Assets Normal Distribution Graph - Histogram

Before Log:



After Log:



APPENDIX B Hausman Tests

The Stata results of the Hausman test recommending that the Fixed Effects model be applied.

Model 3

chi2(4)	=	(b-B)'[(V_b-V_B)^(-1)](b-B)
		25.53
Prob>chi2	=	0.0000

Model 4

chi2(4)	=	(b-B)'[(V_b-V_B)^(-1)](b-B)
		23.93
Prob>chi2	=	0.0001

Model 5

chi2(4)	=	(b-B)'[(V_b-V_B)^(-1)](b-B)
		30.49
Prob>chi2	=	0.0000

Model 6

chi2(4)	=	(b-B)'[(V_b-V_B)^(-1)](b-B)
		25.51
Prob>chi2	=	0.0000

Model 7

chi2(4)	=	(b-B)'[(V_b-V_B)^(-1)](b-B)
		24.65
Prob>chi2	=	0.0001

Model 8

chi2(4)	=	(b-B)'[(V_b-V_B)^(-1)](b-B)
		30.53
Prob>chi2	=	0.0000

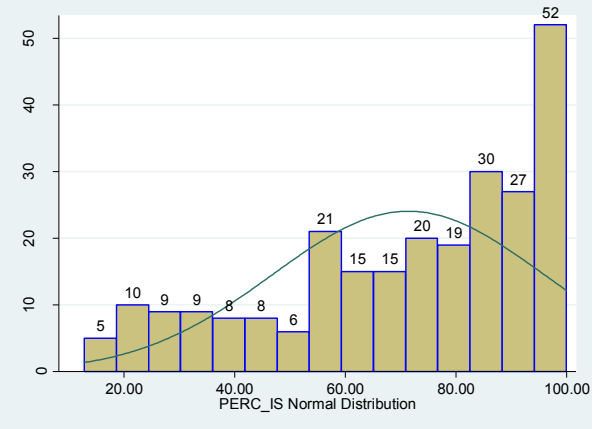
APPENDIX C Histogram and Normal Q-Q Plots (All Variables)

Graphical Tests for normality for all the variables used in the study.

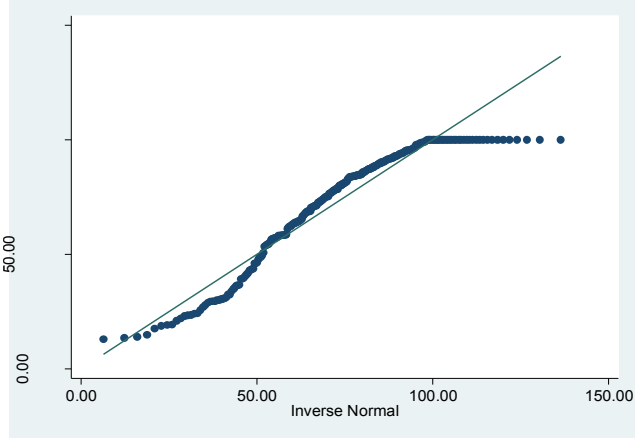
Dependant Variables

Percentage shareholder by Institutional shareholders - Histogram and Normal Q-Q Plots

Histogram

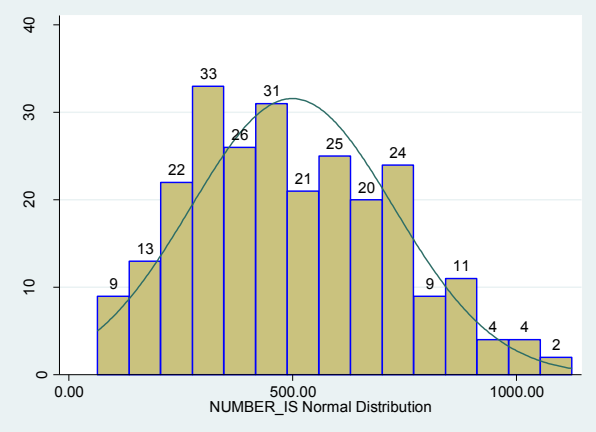


Q-Q Plots

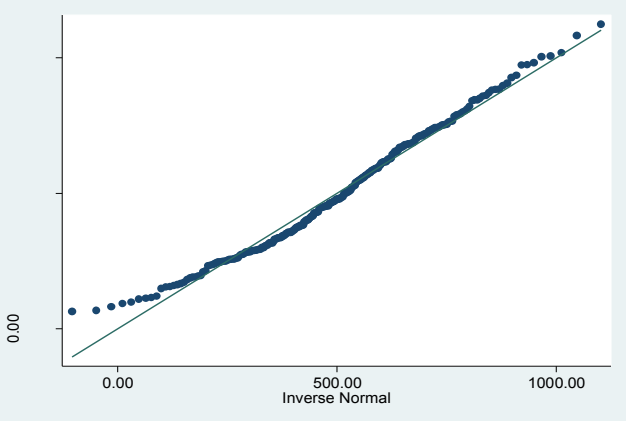


Number of Institutional Investors - Histogram and Normal Q-Q Plots

Histogram



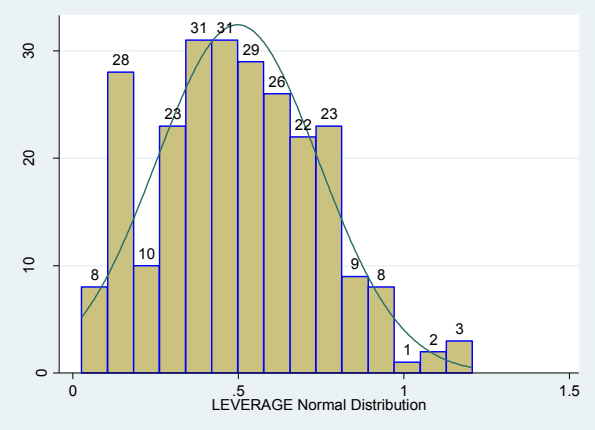
Q-Q Plots



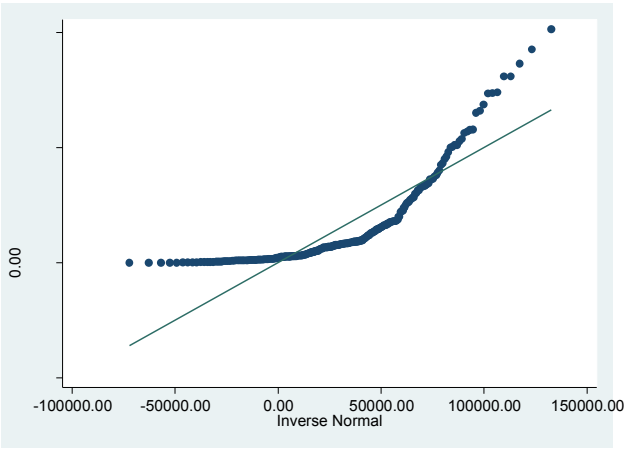
Independent Variables:

Leverage - Histogram and Normal Q-Q Plots

Histogram

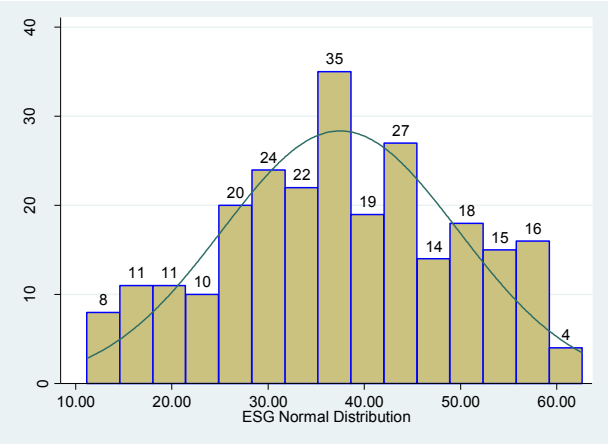


Q-Q Plots

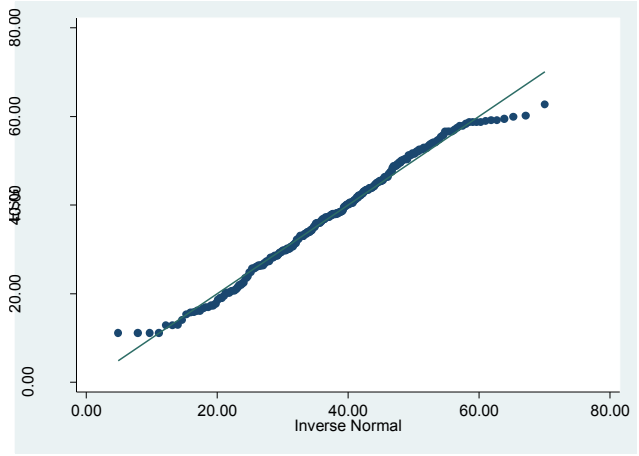


Bloomberg ESG Disclosure Scores - Histogram and Normal Q-Q Plots

Histogram

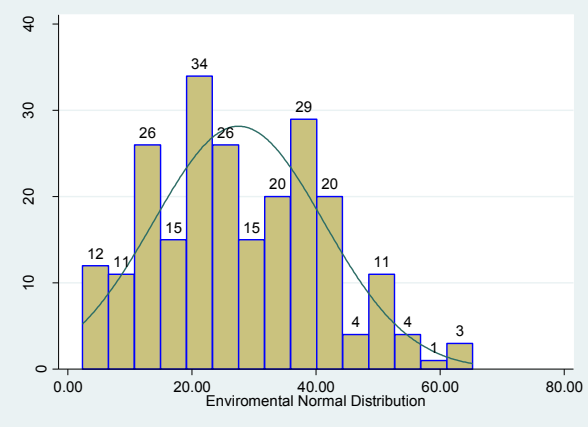


Q-Q Plots

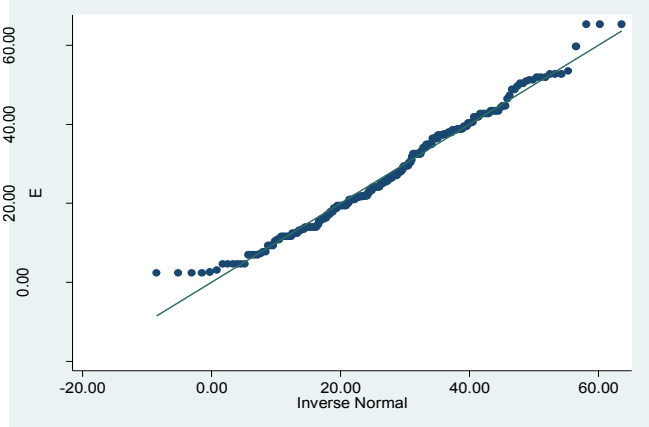


Bloomberg Environmental Disclosure Scores - Histogram and Normal Q-Q Plots

Histogram

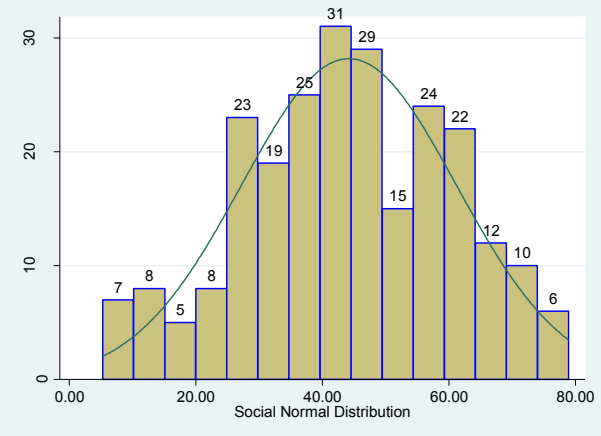


Q-Q Plots

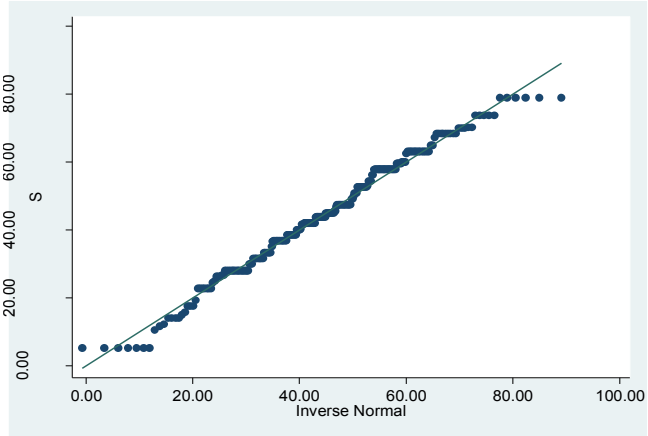


Bloomberg Social Disclosure Scores - Histogram and Normal Q-Q Plots

Histogram

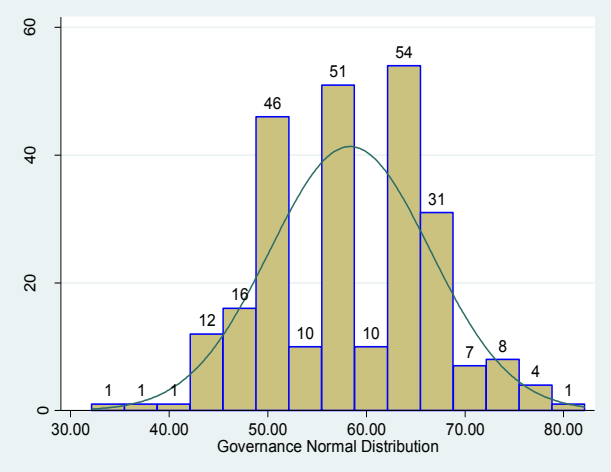


Q-Q Plots

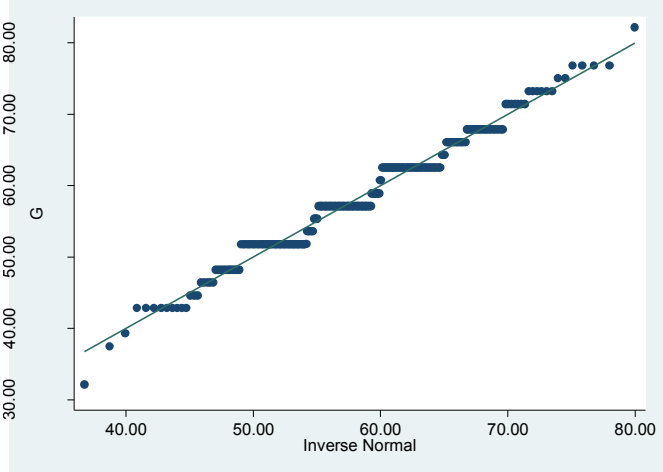


Bloomberg Governance Disclosure Scores - Histogram and Normal Q-Q Plots

Histogram



Q-Q Plots

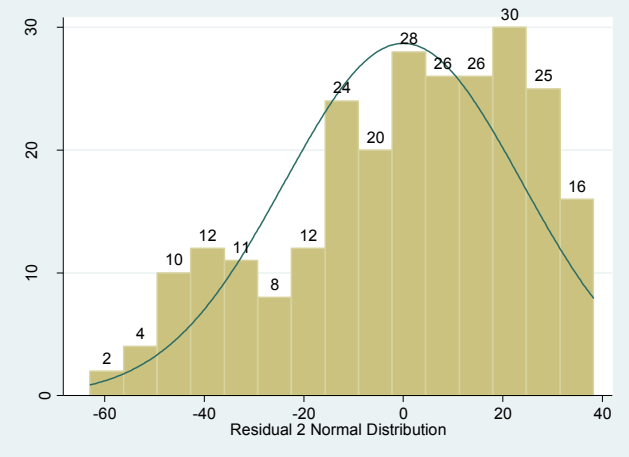


APPENDIX D Histogram and Normal Q-Q Plots (Residuals)

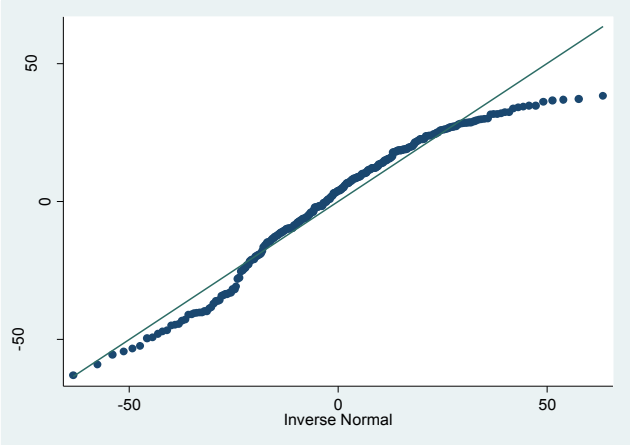
Graphical Tests for normality for the residuals from the models featuring both dependant variables.

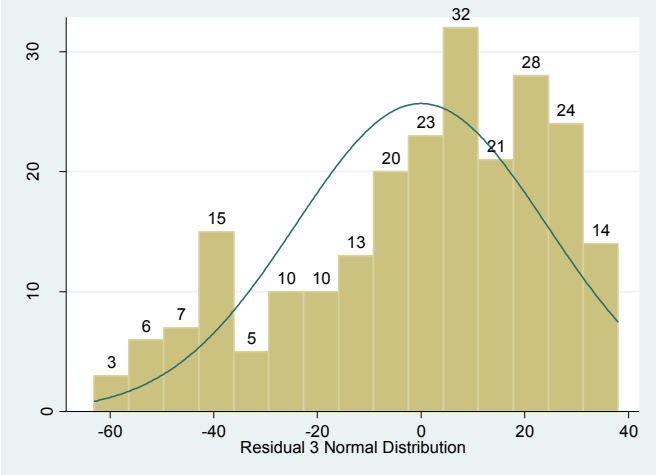
<u>Residuals with the dependant variable being percentage shareholder by Institutional Investors</u>

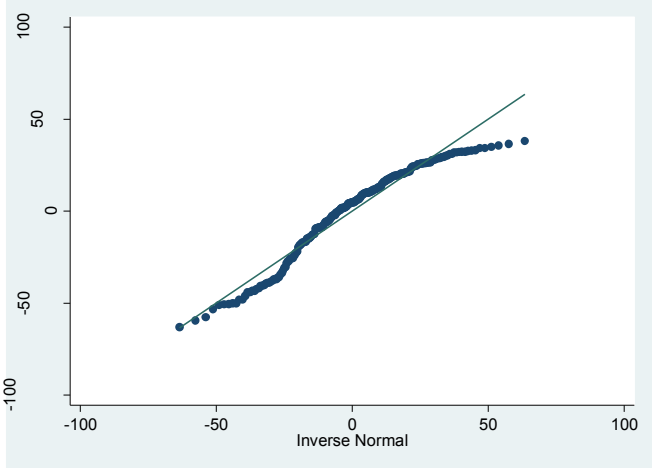
Histogram

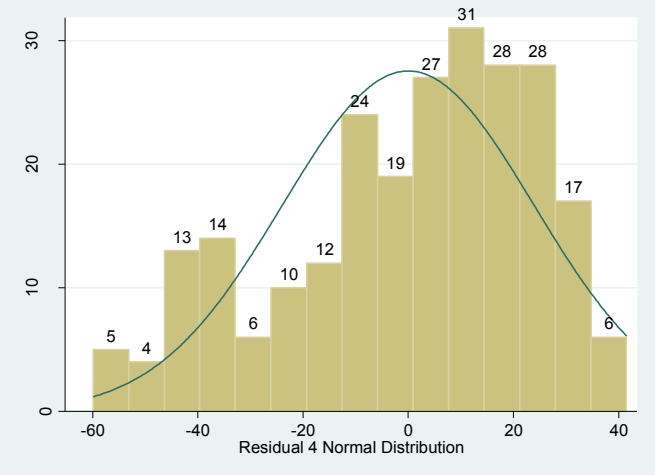


Q-Q Plots





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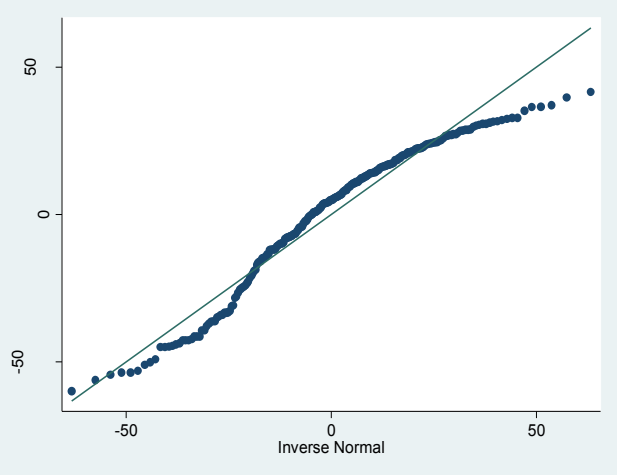
Residual 4 Normal Distribution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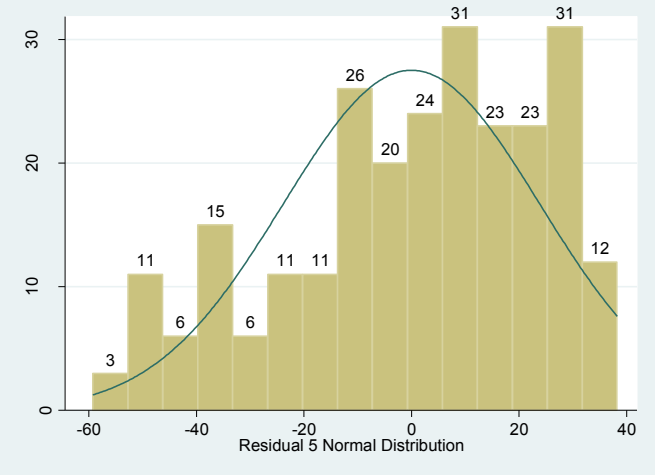
Inverse Normal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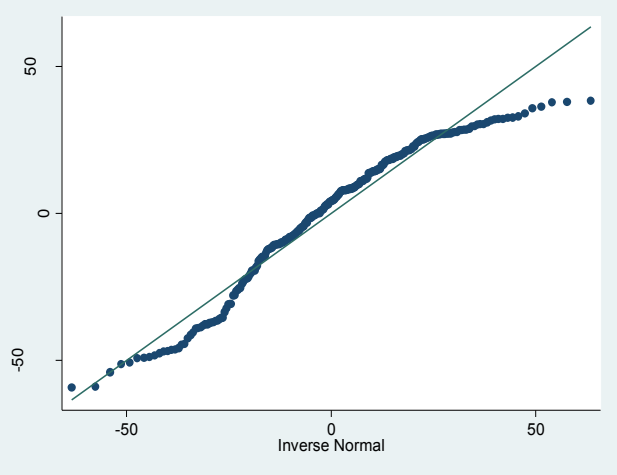
Residual 5 Normal Distribution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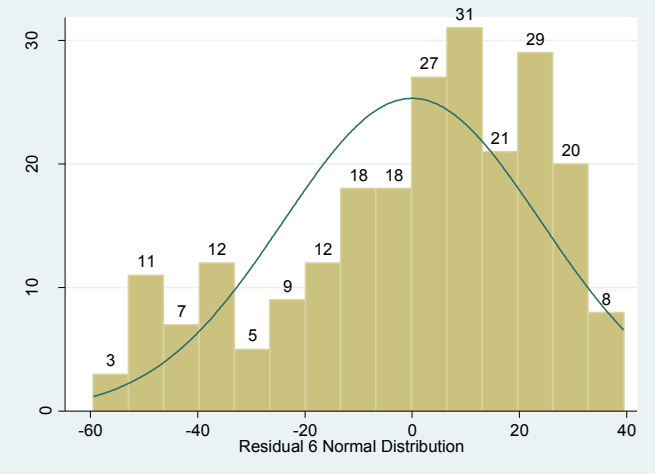
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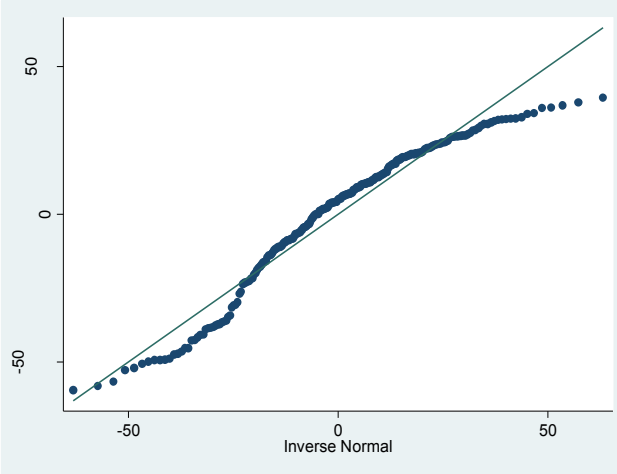
Residual 6 Normal Distribution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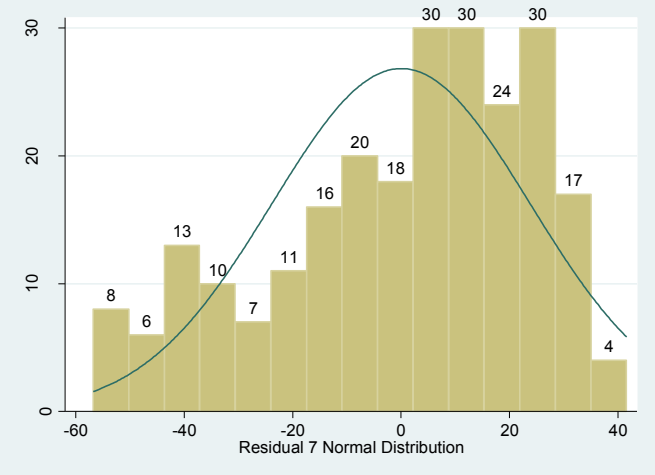
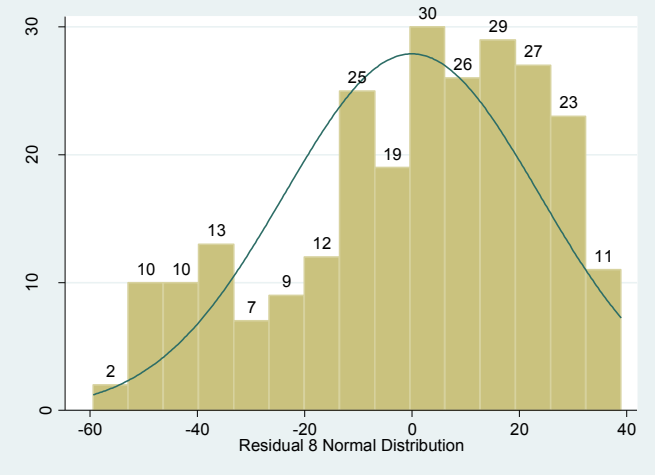
Inverse Normal

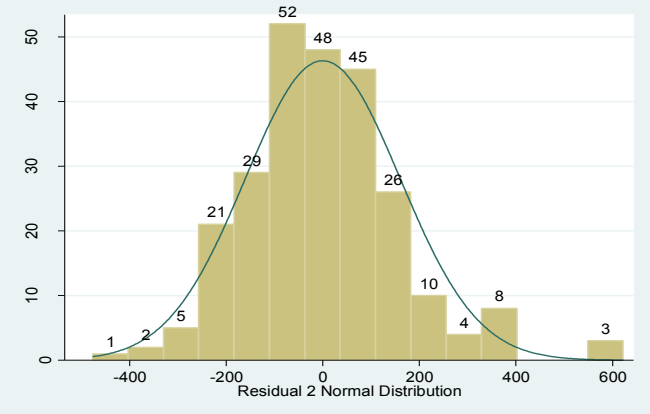


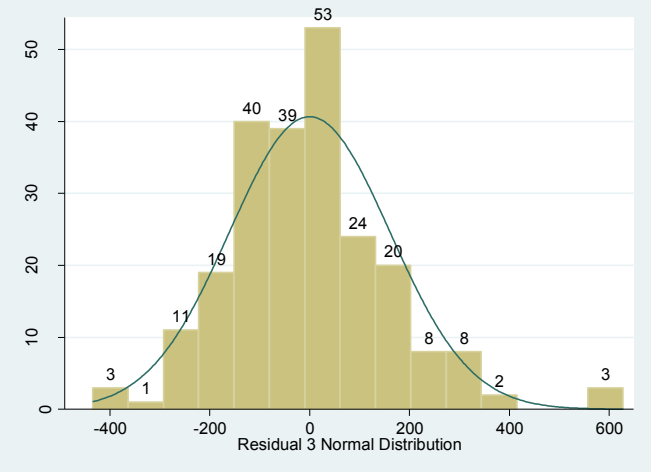


Residuals with the dependant variable being the number of Institutional Investors

Histogram

Q-Q Plots

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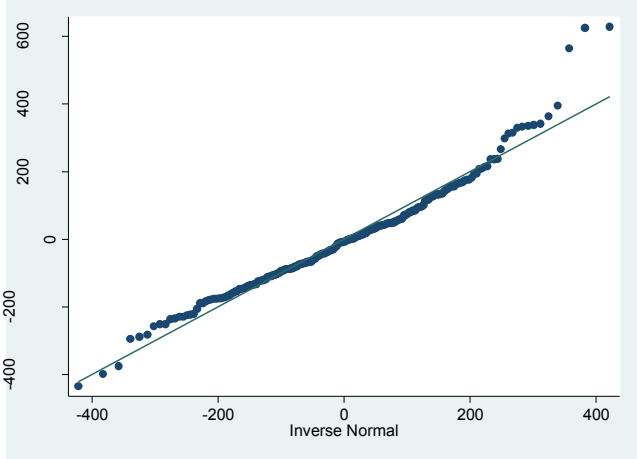
Residual 3 Normal Distribution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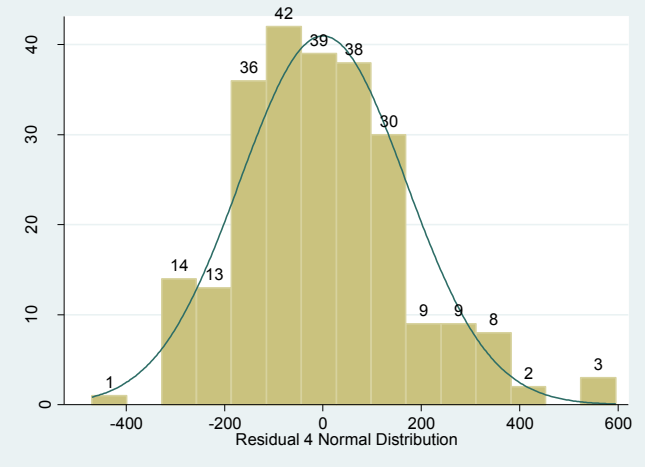
Inverse Normal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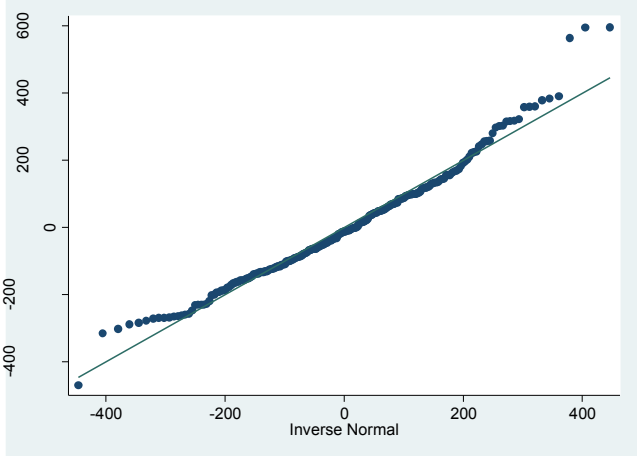
Residual 4 Normal Distribution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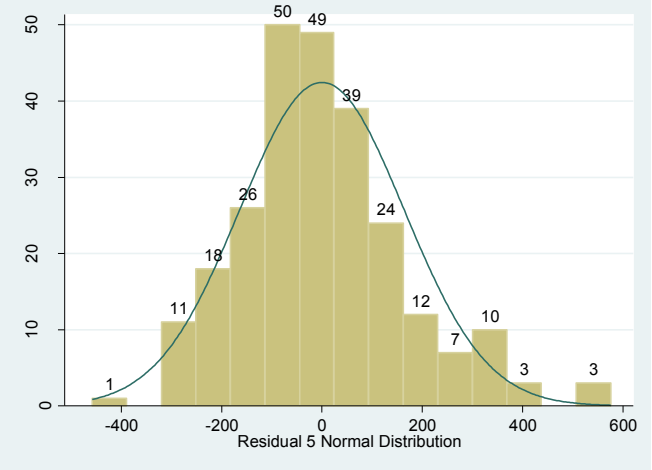
Inverse Normal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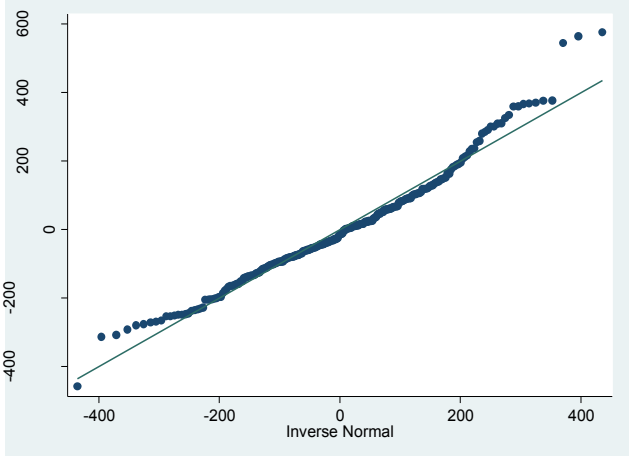
Residual 5 Normal Distribution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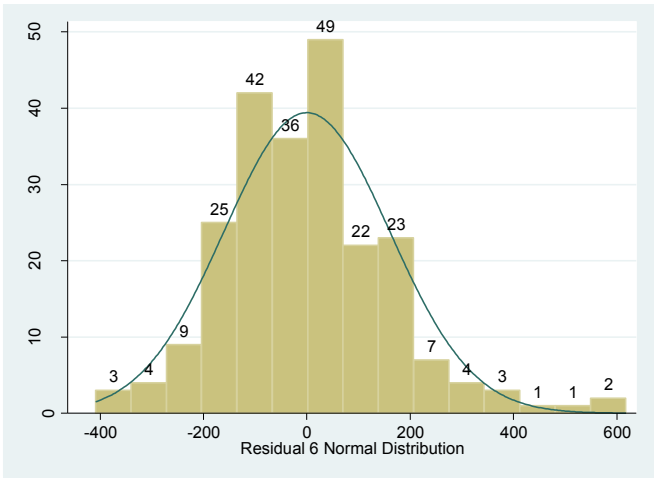
400
Inverse Normal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4
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2
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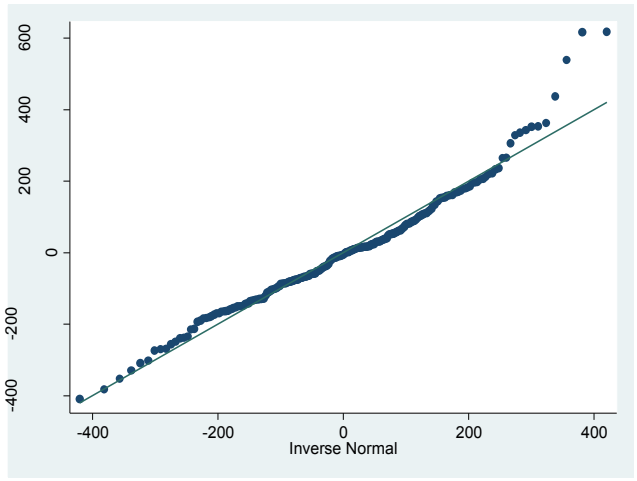
600
Residual 6 Normal Distribution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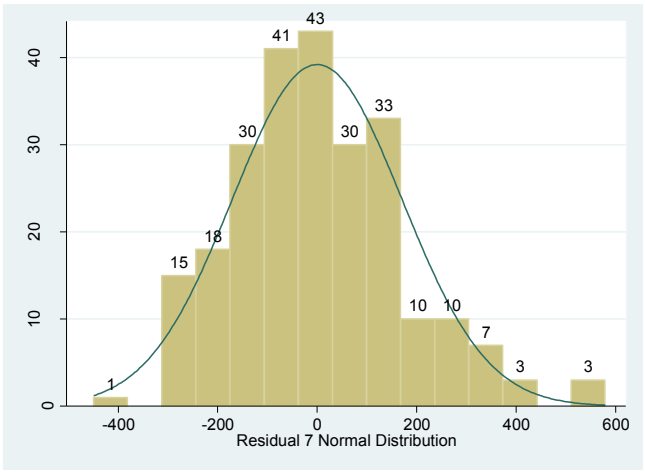
Inverse Normal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7
3
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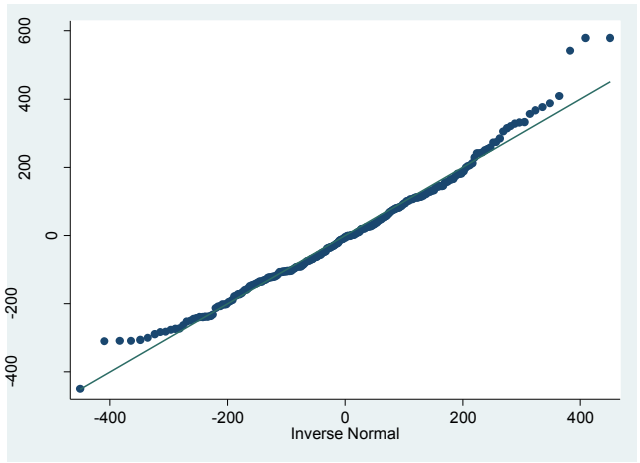
400
600
Residual 7 Normal Distribution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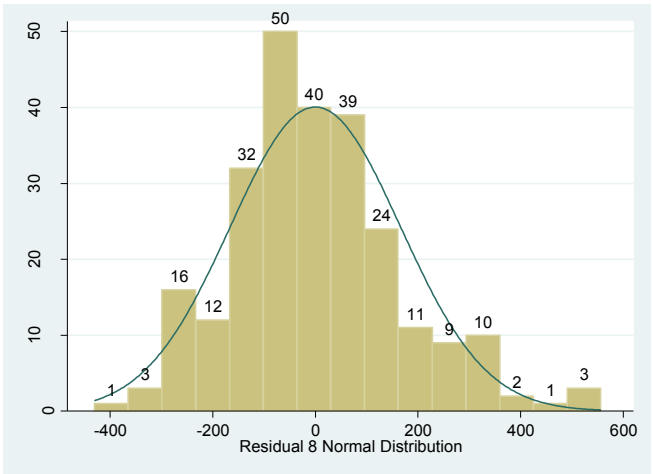
Inverse Normal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24
11
9
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2
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3
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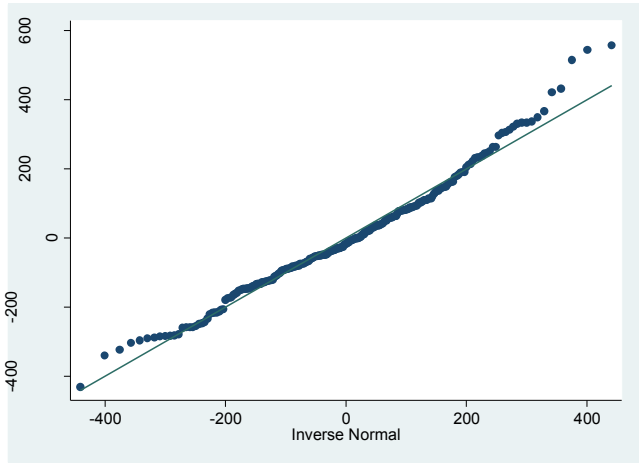
200
400
600
Residual 8 Normal Distribution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-200
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200
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600
-400
-200
0
200
400
Inverse Normal

APPENDIX E Multicollinearity Tests

Multicollinearity tests for the remainder of the regression models.

	Model 3	
Variable	VIF	1/VIF
Log_ASSETS	1.05	0.951108
E	1.05	0.956353
ROA	1.05	0.956845
LEVERAGE	1.04	0.958888

	Model 4	
Variable	VIF	1/VIF
S	1.09	0.915845
Log_ASSETS	1.07	0.933072
LEVERAGE	1.07	0.937285
ROA	1.04	0.964474

	Model 5	
Variable	VIF	1/VIF
Log_ASSETS	1.13	0.882088
G	1.13	0.885071
ROA	1.06	0.941472
LEVERAGE	1.02	0.978032

	Model 6	
Variable	VIF	1/VIF
ROE	1.08	0.928828
LEVERAGE	1.07	0.930568
E	1.06	0.940841
Log_ASSETS	1.03	0.974129

	Model 7	
Variable	VIF	1/VIF
LEVERAGE	1.10	0.907352
S	1.09	0.915163
ROE	1.05	0.948004
Log_ASSETS	1.05	0.955702

	Model 8	
Variable	VIF	1/VIF
G	1.14	0.876709
Log_ASSETS	1.11	0.902576
ROE	1.08	0.923873
LEVERAGE	1.06	0.943375

APPENDIX F Autocorrelation Tests

Autocorrelation tests for the remainder of the regression models.

Model 3

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 54) = 17.965
Prob > F = 0.0001

Model 4

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 58) = 21.933
Prob > F = 0.0000

Model 5

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 65) = 17.221
Prob > F = 0.0001

Model 6

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 54) = 19.027
Prob > F = 0.0001

Model 7

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 58) = 24.748
Prob > F = 0.0000

Model 8

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 65) = 16.630
Prob > F = 0.0001

APPENDIX G Heteroscedasticity Tests

Heteroscedasticity tests for the remainder of the regression models.

Model 3

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (94) = 6.2e+32
Prob>chi2 = 0.0000

Model 4

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (97) = 8.6e+34
Prob>chi2 = 0.0000

Model 5

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (98) = 8.0e+31
Prob>chi2 = 0.0000

Model 6

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (94) = 1.5e+32
Prob>chi2 = 0.0000

Model 7

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (97) = 1.3e+32
Prob>chi2 = 0.0000

Model 8

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (98) = 2.1e+33
Prob>chi2 = 0.0000